PRESENTED BY
DR. A. S. WARTHIN.

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The Massachusetts Medical Society

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The Massachusetts Medical Society

PUBLIC INSTRUCTION IN MEDICINE*

THE SHATTUCK LECTURE

BY WILLIAM H. ROBEY, M.D.†

INTRODUCTION

THE one who is asked to give the Shattuck Lecture may be tempted to discuss some subject within his special field, and, where, as in the case of several of my predecessors the speaker has had the distinction of reporting an advance of outstanding importance in medicine, surgery, or research, it has been an event of engrossing interest to all his colleagues. Lacking such achievement, the topic for consideration this evening offers a problem that in certain aspects at least is of general interest to the several branches of our profession.

The questions frequently asked by physicians and occasionally by thinking laymen are: Do public lectures and instruction produce results of any value or does the information given arouse morbid broodings and apprehensions in the individual causing him to worry about sensations which would otherwise have passed unnoticed? May hypochondria sometimes be traced to these well-intentioned dissertations? Are not a certain number of women transformed into nervous invalids by constantly hearing and reading about the first symptoms and signs of some long dreaded disease until they come to believe that they have every indication of the malady?

QUESTIONS AS TO EFFECTS OF PUBLIC INSTRUCTION

We can best answer all of these questions in true Yankee fashion by asking another. Who is to give instruction to the public on medical subjects if not the legitimate possessors of medical knowledge? The public is being informed upon such subjects as art, literature, science, economics, investments, etiquette, bridge, ad infinitum. Journals and public lectures give accurate information by experts on these topics and the same inquiring public is looking for similar help in medical matters. Why shouldn't the public want to learn about medicine and disease? People are better educated than ever before; their minds are more receptive and perceptive. Yet when you discuss medicine with your most intelligent patients you will find a mass of superstitious survivals and distorted theories. They are utterly unable to sift the wheat from the chaff; their questions indicate but small understanding of the differences between legitimate medicine and quackery. I know a distinguished scholar, learned in philosophy and the humanities, who likes to discuss the various diurnal and nocturnal activities of his liver. The liver, that organ upon which so much abuse has been heaped throughout the centuries, gives him definite information of its every action. Quantities of bile are poured directly from his liver into his intestine which receives the insult with many grumblings and sometimes like a disgruntled actor throws up the part. I am perfectly sure that he derived his anatomical knowledge from Plato. Experienced physicians are the ones qualified to give accurate information to the public in language which can be understood—even Plato can be refuted and disproved if opportunities are sought or accepted by us to help in removing this most persistent incubus of ignorance in vital matters of health.

The physician of today is still bound down by tradition. Some of our colleagues look upon those who seek to teach the public as advertisers. There is still a tacit acceptance in general that any form of publicity emanating from or referring to a physician, even for the public weal, is a breach of professional ethics, in that attention is called to that particular physician. It is claimed that his practice may be augmented by any public appearance and that his ulterior motive is to attract attention to himself. Yet a sufficient number of physicians whose integrity is beyond question have sought in a variety of ways to reach the public ear with instruction in the incipient signs of the disease which they have become eminently qualified to discuss. Could any one doubt the sincerity of that master of diabetes, Elliott P. Joslin, whose lectures and radio talks have done so much to arrest the attention of persons temporizing with the early

*Read before the Annual Meeting of the Massachusetts Medical Society, June 11, 1929.

†For record and address of author see "This Week's Issue," page 1308.

symptoms of diabetes, and whose manual for the diabetic has halted the victim on the brink of catastrophe? Pardee and Hart have each written books for the layman to warn him of the early signs of cardiac failure, and Lord has done a similar service in pneumonia. There are many others, and new authors are constantly appearing.

ATTITUDE OF THE PRESS AND SUGGESTIONS REGARDING CENSORSHIP

Naturally the daily journals are looking for news and paid advertisements. About three years ago, the New England Heart Association had some experience with the press in attempting to instruct the public in the prevention and care of heart disease. Plain facts in simple language found great difficulty in securing space. Even when the article was accepted, it was often cut down to complete a column and the editor in his ignorance of the subject was liable to delete the most essential parts. Magazines, however, have often printed our contributions in full when presented and have even requested them.

It has been suggested that medical articles before appearing in the daily press might be censored by a reliable medical man who would be connected with the editorial staffs of the newspapers, or the manuscript might first be reviewed by the editor of the leading medical journal of the state. Articles offered to medical journals for publication are passed on by a committee before acceptance, and it is equally important that medical information in the public press should be subjected to similar censorship. It is through the daily press rather than through expensive magazines or health journals with a restricted circulation that information is to be disseminated to all classes, and unless to all classes we fall far short of our goal.

OPPORTUNITIES FOR PRACTITIONERS

Most physicians are individualists; they are concerned with the management of units moving from one to another and disposing of the problem at hand. Very few consider their cases in groups or tend to draw particular lessons for the use of their colleagues by a comparison of deductions. A general practitioner may be too much occupied with the ever changing scenes of his daily routine to spend the time upon the accumulation of data and the publication of the facts deduced. At the end of a taxing day of travelling, diagnosing, and advising, he may be too weary to do more than jot down the salient points of his cases, or he may not be interested in gathering, correlating, and presenting his facts in an instructive and compelling manner, but I believe that here exists one of the greatest opportunities for important community service. Every city and town has its women's and men's clubs and other groups who are showing an increasing desire to put medical papers on their programs. The modest practitioner who believes that it requires a rare endowment or a long apprenticeship in writing or speaking to acquire the accomplishment of public persuasion may be consoled as I have been by the words of Peter Latham, one of the great clinicians of a century ago: "Knowledge may be an incumbrance as well as a help. Many men know more than they are able to wield. There is a point in the acquisition of knowledge beyond which, if more be acquired, the whole mass becomes useless to its possessor. I am acquainted with men who never have done and never can do anything because they know too much, and I am acquainted with men possessing comparatively small knowledge, so dextrous in its use that they have ridden over the heads of others, far, very far their superiors in acquirements."

Let me urge every physician who is invited to appear before any group to realize that he has at least one talent not to be securely wrapped in a napkin but which it is his duty and his privilege to invest in public welfare in order that it may yield a return in more intelligent understanding of the dangers, the possibilities, and the certainties regarding disease, which our profession is eager to place at the disposal of all who wish to learn; and as for the distinguished specialist whom we may biblically term the five-talent man—through his readiness to share not only with his colleagues in technical terms but with the general public in simpler forms, a door of opportunity is always open for widened service. I do not mean to imply that every physician has the gift of public speaking, but what I do mean is that he is able to cull from his reading and experience material which he can in some way use for the good of the public. There are those, on the other hand, of great attainments who are unable to render this type of service but their contributions to the science of medicine and surgery are always available for distillation and diffusion. The editor of a national medical publication, dedicated to the service of physicians living at a distance from medical centres, once said that he had some difficulty in securing articles sufficiently free from highly technical material to make them of practical every-day use to the rural physician. He had heard criticisms by subscribers and he wished to please them by giving them less theory and more practice, but the authors declined to descend from Olympus. They were men of standing in universities and hospitals who found it impossible to talk in simpler language. Perhaps the editor was wrong and his readers needed more education than they were willing or able to accept. Possibly the editor's view was slightly clouded by commercialism, and yet he may have been within his rights since he clearly stated the purpose of his journal: the bringing of the latest findings in great centres to those

at a distance. In any event, since these men were unable to divorce themselves from technical terms, it is doubtful if they would make satisfactory instructors of the public. On the other hand, there are in this community several men who are convincing and equally at ease when speaking before a scientific assembly, or a lay audience. Before the latter, by their simple words and illustrations, they stress the points which they hope will become fixed in the listeners' minds and if occasionally an uncommon medical term must be used, it is always briefly and clearly explained.

PUBLIC LECTURE COURSES

The Sunday afternoon Public Lecture Course of Harvard has been given for many years on a great variety of carefully selected subjects. The speakers, who are usually drawn from the Medical School staff, are specialists in a particular field, and the programs have from time to time been enriched by an imported expert or such a leader in public thought as our revered Bishop Lawrence, whose influence carries into the realm of things physical and by whose message multitudes are wisely directed.

While some of the lecturers make several appearances over a period of years, it is the intention of the committee to change the list frequently, thus giving many of the younger men opportunities. The committee is not aware of the substance of the lecture before it is given, but a member is always present to pass judgment upon its value, the speaker's delivery, and its effect upon the audience. Similar or related subjects may be given the following year by different speakers, especially if the topic is one which the committee feels should be kept in the public mind. The Public Lectures are well advertised and what is more they have now become an institution. They are given at a definite time each year and the public is watching for them. Other medical schools, Boston University and Johns Hopkins, offer similar courses, those of the latter institution, being made possible by the DeLamar Fund, comprise lectures on "personal and public hygiene with the hope that this is the way to serve as a centre for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine." It is true that at most lectures, especially those of a clinical nature, there are a few people in the audience who have come for the sole purpose of obtaining a little free medical advice about a disease, real or fancied, who wish to know if it will be harmful for father or uncle to climb two flights of stairs, to indulge in coffee, or to smoke cigars. The lecturer gives a tactful reply and refers the patient to his family physician. The majority have come to derive some authoritative information on a subject which has interested them, and with a little care on the part of the lecturer none need be unduly alarmed. The essentials of the lectures are given in the daily press and create more or less discussion among various groups. If a lecturer makes a facetious remark, the reporters are sure to seize upon that and use it as a headline. There may be an advantage in this provided the essence of the theme has been included, for it may serve to focus attention upon material which otherwise might be passed by. In the series of medical lectures given before one of the Rotary Clubs of New England this winter, the one on cancer stimulated two women present to consult a surgeon immediately about tumors of the breast which they had been neglecting, and both proved to be early malignant disease.

In a medical centre there is a sufficiently large group of physicians and surgeons to cover a variety of topics but in smaller communities where the physician is in general work, the problem is more difficult. It is possible that the words of one who is not giving strict attention to a definite branch of medicine will lack the weight of the specialist. Yet the men who care for all the sick of a community should certainly be among those to instruct the public, though often the local committee prefers to invite lecturers from a medical centre. Such was the plan of the Kiwanis Club of Concord, New Hampshire, this winter. However, almost every community now has an excellent hospital where a very high type of work is done, and lecturers should be drawn from its staff members or from those in the county medical society who are interested in presenting cases at its meetings. Surely some will be found in such a group who have an interest and facility in giving public instruction in the incipient signs of disease.

SUGGESTIONS FOR ENLARGED USE OF HOSPITALS

Hospitals are great centres of public instruction and have most favorable conditions for assisting in moulding public opinion in all lines of public health.

As staff members we have the privilege of drawing the attention of interns, nurses, and social workers to the resources at their disposal for an enlarged personal knowledge which can be transmitted with wisdom, with tact, with conviction, and yet without any unwarranted obtrusion upon the patients. There is no more opportune moment for establishing the right point of view in matters medical and sanitary than during the hours of hospital life, and that without any undue strain on the part of the hard-worked force upon whose care the sick depend. There are nurses (and may their tribe increase) who without seeming effort transform the mental attitude of the patient so that he leaves the hospital a messenger of better living to his community, a co-worker with us, albeit almost unconscious of his mission. My plea is for greater recognition of the hospital on its educational side, for a development of its in-

numerable and advantageous opportunities to become one of the most far-reaching forces in our corporate civic life for the propagation of fundamentally sound health principles.

It would be a definite and desirable achievement for this generation if some methodical, standardized instruction could be given to house-officers in the elements of their relation to patients beyond the diagnosis and treatment of disease. Sporadic attempts have been made in medical schools to introduce courses in ethics, but they have proved abortive since the undergraduate's program is filled to utmost capacity with his technical subjects; and furthermore, not until the student becomes an intern does he have the daily opportunity of observing the personal relation of physician to patient. Unless those of us who by years and experience have come to know the importance of this relationship take the time to instruct our house-officers, an otherwise excellently trained student may be launched on his career, ignorant of this phase of his professional function, and years are lost in attaining what might have been begun under conditions and at a period when acquisition of such knowledge would have been easy, timely, and eminently practical in its narrower and broader aspects. More and more should our young doctors appreciate their responsibilities in the community at large if they are to share in the campaign of enlightenment which is already under way but which must be supported with constant vigilance if it is to become widespread and still more productive of satisfactory results.

The sanatoria for the treatment of tuberculosis have done a stupendous work in teaching others than their patients through the information carried back into thousands of homes. With a reduction of 60 per cent. in the death rate from this disease during the past thirty years, and the assured prospect of a further and unreckonable decrease, we have the most spectacular demonstration in medical history of what a wisely organized, carefully followed up public policy can accomplish. Yet, the National Tuberculosis Association estimates that 57% of the 1500 sanatorium patients studied in its recent survey had not consulted a physician sufficiently early after the first symptoms had appeared, which corroborates the general observation that many are still unacquainted with the subjective signs which would make them seek immediate medical advice. Further education of the public must be secured to overcome reluctance toward prompt consultation; and in addition there must be increased vigilance on the part of the family physician if the campaign against tuberculosis is to be successfully waged.

The cardiac clinics which are being established throughout the country under the guidance of the American Heart Association, while comparatively new, are not only teaching cardiacs how to live and conserve their cardiac strength, but they are, by lectures and pamphlets, broadcasting to the general public information concerning the prevention and early recognition of cardiac disease. The work of the Cancer Commission in acquainting people with the danger of allowing swellings and tumors to continue undiagnosed and without prompt and proper treatment is too well known to require more than mention. President Lowell said that the success of the lion tamer depends upon knowing what the lion is going to do before he does it. The most important time in a fire is the first five minutes. The medical undergraduate knows the treatment of declared disease, while only the well trained physician recognizes the obscure signs, but if the patient does not come until the fire is raging, its extinction is difficult, if not impossible.

CHARLATANS AND CULTISTS

The physician of today does not fear the information given to the laity by medical societies whose standing or aims have been fully accepted by the profession, nor by our accredited leaders whose honesty and motives are beyond question. He abhors, however, the legalized practitioner who advertises himself in the daily press by vaunting some quasi-cure for a baffling disease couched in semi-scientific and plausible language. While the public enthusiasm lasts the doctor reaps a harvest and as it dies, as die it must, he moves on to something else. The physician regards the extravagant and fantastic advertising of the charlatan or cultist as beneath his notice, but how is the public to discriminate against specious methods unless we instruct them? Frequently we are asked about the value of this or that form of cure or diagnostic procedure and we should be prepared to give a convincing explanation. A contemptuous answer may prove a boomerang for the questioner is sure to go away with the belief that we are either biased or jealous and will turn to quackery even more readily than if we had praised it.

Charlatans have always existed and always will unless there is a universal scientific education and a very radical change in human nature. The perennial attraction of novelty does not stop short of medical matters and the world is still fascinated by irregular practitioners and their astounding promises. To many, even among the civilized, there is something mysterious about disease and we are still faced with unreasoning opposition to scientific medicine, and with onslaughts of bitter antagonism. A recent writer says, "It is not surprising that rational medicine has opponents, for man's inherent nature is such that he has an almost intuitive belief in primitive medicine which can be reformed only by education and reason. Many people with a merely literary or religious education have never learned to think logically in

matters of health." Man reverts to primitive medicine when he turns to the charlatan and it is therefore our duty to educate him as far as possible in modern scientific medicine and the laws of health. The trained physician builds his treatment upon diagnosis which is reached only after a complete history and thorough physical examination. Samuel Gee paraphrased Demosthenes by saying of medicine that the most important thing is diagnosis, the next most important diagnosis, and the third most important diagnosis. But we must remember that the patient's medical history is equally important and through it we gain a knowledge of the patient which may never be discovered by physical examination and laboratory tests. Peabody said that everybody, sick or well, is affected in one way or another, consciously or subconsciously, by the material and physical forces that bear on his life, and especially to the sick, such forces may act as powerful stimulants or depressants. Our interest in the scientific aspects of disease may blind us to the action of these forces and may result in failure. The patient finding us helpless may turn to the quack who cares nothing for diagnosis but is plentifully supplied with prognosis.

The field of the cultist is fertile ground. Deep-rooted traditions, the desire for novelty, ignorance of the aims of scientific medicine, and the shortcomings of inadequate medical advisers enrich his soil. When we pause to envisage the paucity of the weapons at our disposal to combat the claims of unscrupulous empirics, we often feel that there is nothing to be done beyond the careful enlightenment of those who seek our advice, but here I suggest that each of us can become a public servant even within his own practice, for there is a slow steady percolation of the good and the true into the social consciousness, which has its distinct effect in limiting the evil and the untrue, and it is one of our very imperative functions to instruct privately, not only for the effect on the one listener but with an eye to the extension of accurate information through him to those with whom he comes into daily contact in the home or in his occupation. But even if professional etiquette or personal reluctance restrains a physician from exposing the pretentious fallacies of the quack world, should he not co-öperate with existing organizations and enlarge their sphere of usefulness, by utilizing more freely than many of us do the publications of signal importance in which impostures are laid bare, as well as those in which concrete, constructive information is given?

OUR DUTY TOWARD LEGISLATIVE HEARINGS

Legislators do not belong as a rule to an unintelligent class, and most of them have personal physicians from whom they should learn the rights and wrongs of various forms of practice. Their physicians should not wait to be asked for information but should seek opportunities to instruct them. Attendance at legislative hearings is for us both irksome and time-consuming, yet it is a duty to indicate to the public, by our presence and if possible by our speech, the interest and belief which we hold in the maintenance of the laws of health and rational medicine.

At the first hearing of the bill to license chiropractors, under a separate board of registration, the hall was crowded to suffocation, and when the advocate called upon all those present to rise who had been helped or cured by chiropractors after regular physicians had failed, the only persons who remained seated were the legislators and the six or eight doctors congregated in the center of the room. As the proponents surrounded us and glowered down, I could think only of the snow-covered sheep huddled together in Schenk's famous painting "Winter". What must legislators and others think of such a feeble display of opposition to a bill of vital concern to our profession and, as we believe, of far reaching importance to the laity? When requested to attend the hearing, one young surgeon said that he was too busy making a living, and a physician retorted that if the people wish to be fools let them so continue. Why was there not present a phalanx of our number whose presence would have been heralded in the press and whose obvious determination to uphold the highest professional standards would have carried a weight of conviction to unnumbered readers of the proceedings, now unfortunately uncertain as to whether it is only a small coterie who are interested or what they call prejudiced? This indifference to community duty costs us dearer than we sometimes realize. But the people are not fools; they are mere children in medical matters, accepting the benefits of public health measures as infants do their food and raiment, and failing to realize that victories for the common welfare have been slower and more difficult in the winning than those on the fields of honor. If the laity knew more about the history of medicine, knew that when smallpox, one hundred and seventy-five years ago, passed through an unvaccinated English village two-thirds of the inhabitants were left in the church-yard, would it be so willing to allow the scourge to return? Yet we must frequently return to the State House to fight the opponents of vaccination. I say "we" but it is generally a microscopic we. If our profession had shown the legislators by our presence and support that vaccination is the means, and the only means, of preventing the march of smallpox and its trail of death, would this great and in many ways most progressive country have two states where compulsory vaccination laws have recently been repealed? I think not, and it is partly if not largely because of our inertia that smallpox is not entirely wiped out. Naturally it is the

function of health organizations to take measures toward the prevention of disease, but are we as individual physicians to sit quietly and take no part in these campaigns, satisfied merely to treat or operate upon those already afflicted who come to us?

CO-ÖPERATION IN PREVENTIVE MEDICINE WITH PUBLIC AGENCIES

The Commonwealth has issued cards entitled "Preventive Medicine from Your Family Physician" and is ready to supply us with them to mail to our patients. They stress the importance of typhoid, smallpox, and diphtheria vaccination and of periodic physical examinations. Is this unethical? No, not when the chief health organization of the state supports it. The U. S. Public Health Service has prepared for distribution a pamphlet on the transmission of ringworm of the feet and hands, stating that one-half of our adult population suffer from it at some time, many of them unaware of the presence of the parasite, how it was acquired, and how it can be cured. How often do we take the initiative in these defensive measures? Do we not more often wait for the patients to come to us requesting protection? An attitude which might easily be interpreted as evincing a far greater interest in their diseases than in their continued good health.

With the growing need of the recognition of disease in its incipiency and the activities of the tuberculosis associations, the cancer commission, and the heart associations, the Massachusetts Medical Society felt that it should take an active part in public instruction. For this purpose, a standing committee was formed, but I regret to say that it died in early childhood of inanition, since strange to relate, no dietitian was at hand. I hope that another will be born, for if it can be properly nourished, I believe that it has work to do. The cause of its demise rested on the fact that every one was too busy to give it proper care. Its personnel was made up of representatives from a number of special societies, each of which was striving in a variety of ways to interest the public. The Massachusetts Medical Society belonged then as now to the Central Health Council, an organization formed for the purpose of co-ördinating public activities, but with which its collaboration has not yet become as vital as the situation requires.

Not long ago the *New York State Journal of Medicine* suggested that county medical societies should hold a public meeting once a year. It is an idea to be given serious and prompt consideration, and if our state society thought well of it, here would be one obvious duty for the Committee on Public Instruction, and many others will readily occur to your minds. The American Red Cross maintains a bureau for the procurement of speakers on health before various lay organizations. Several Boston doctors are on their list but calls are not yet as frequent as could be wished. It would be one of the functions of our committee to urge the insertion of such an item on club and group programs. The Red Cross with its instruction in resuscitation has given wide publicity to a life-saving measure, and its scope as a community power is capable of endless enlargement through the active and whole-hearted co-öperation of our profession.

PROGRAMS OF PUBLIC AGENCIES

The New England Heart Association has had a public meeting each year but the attendance has been largely by doctors, nurses, and social workers. Very few of the general public have as yet been present, but social workers and community nurses have exchanged experiences and have carried away valuable information for use and general dissemination. Obtaining occupations for adult males with heart disease; placement of women with a heart handicap; home adjustments in chronic heart disease; instruction in the home for children handicapped by heart disease; vocational guidance for children with heart disease; the need of beds in hospitals for chronic cardiac patients, were the topics discussed at the last annual meeting. It shows the activities of our workers in heart disease and the manner in which they are carrying out the instructions of the clinic physicians. It has the same educational value as the follow-up work done in tuberculosis and other branches of social service and community nursing.

People are becoming increasingly interested in heart disease, but notwithstanding the fact that it is the greatest cause of death and has been much discussed, they are not yet thoroughly aroused. It required years to teach the doctors as well as the laity about early tuberculosis, so we struggle on and, though not discouraged, are impatient for more apparent results.

One of our difficulties in the Heart Association is lack of money, but the well-established tuberculosis associations appreciate our efforts and have generously contributed to our treasury. The American Heart and the New York Heart Associations have already become divisions of the National and New York Tuberculosis Associations respectively, and undoubtedly some such amalgamation may occur in Boston. The American Heart Association has many circulars which it is ready to sell at moderate cost to medical and lay societies interested in public health. They are printed in clear type, are concise, and contain such information as the public needs and can assimilate.

The Boards of Health of Ohio, Indiana, North Carolina, New York, Massachusetts and several other states, as well as of some of the large cities, publish a monthly or quarterly which they send to most physicians and such laymen as ask to be placed on the mailing list. The work which our own State Department of Health is

conducting at the present time, under the direction of Dr. George H. Bigelow, is stupendous. Aside from the numerous pamphlets which it has for free distribution, it maintains a bureau of lecturers who are ready to speak before any organization in the state which makes the request, the Department paying an honorarium and travelling expenses. It has within the month inaugurated a sickness survey in Brockton, this city being selected merely for convenience—other cities will be studied later. The survey will be under the direction of Dr. H. L. Lombard and will be the first morbidity study conducted by the department limited to the diseases of late adult life. Probably the outstanding public health problem today is the crippling diseases of middle life, their prevalence, economic distribution, and the availability of resources for treatment and prevention. A similar examination was made in Boston last year by Dr. Haven Emerson. The chronically disabled are with us like the poor; we must not evade; we must aid in solving the question.

Our real hope, our most vital step, is the education of the child which now begins even before it is born and is carried on through school and college. The Child Hygiene Association, school nurses, school and college doctors should be able to lessen the distressing conditions of middle life. Instruction in dental, social, and mental hygiene will help to rear a better, healthier race. The American Child Health Association is rendering an inestimable service in making the country aware of the great value of national child health, and, the President of the United States puts the seal of his official approval on the movement by issuing a special proclamation for the recognition of Child Health Day inviting organizations "to unite in the observance of such exercises as will awaken the people of the nation to the fundamental necessity of a year-round program for the protection and development of the nation's children." Two years ago when the New England Heart Association in conjunction with the school physicians of Boston studied 18,000 children, organic heart disease was discovered in less than one per cent. It was similar to the results of the Cincinnati inquiry.—We were impressed with the excellent condition of the children's teeth, the freedom from infected tonsils, and the interest shown by the parents.

Here let me pay tribute to Dr. Richard C. Cabot and social service; to the social worker and the community nurse. I cannot think of social service without remembering how deeply touched I was by the plight of a poor fellow who came to the out-patient department years ago. We found that he had early pulmonary tuberculosis and slept with his windows closed because of the cold. We told him to open his windows and use more bed-covering, to which he listened patiently and said he would comply with our wishes. We probably would not have heard about the man again had not a district nurse reported that she found him in a bare room with only a bedstead and mattress. His covering consisted of dozens of old newspapers. It was by chance the nurse found him then—today her presence would be a certainty.

Cancer Week has been successful in bringing to doctors and laymen the urgency of early diagnosis and treatment. Its three-days course of instruction elicited many expressions of appreciation. A competent practitioner told me that he now felt able to advise his patients intelligently.

The work of the Army, Navy, and Public Health Service in reducing, treating, and preventing venereal disease emphasizes it as not only a question of morals but equally a problem of sanitation and public health; the classes in tuberculosis, pre-natal care, infant feeding, and convalescent care must impress every unbiased person with the earnestness and efficacy of our efforts, and should stimulate confidence and financial support.

SHEPPARD-TOWNER ACT

One of the most arresting examples of the state and nation joining as partners to economize human life was the creation of the Children's Bureau by Congress in 1912,—the first of its kind in the world but now found in many other nations. As a result of its preliminary studies, it was shown that thousands of babies were dying needlessly and the country was aroused by something far more startling than the slaughter of the innocents. In 1921, Congress after prolonged debate passed an act for the Promotion of the Welfare and Hygiene of Maternity and Infancy, popularly known as the Sheppard-Towner Act, under which the Federal and state governments became allied in the pioneer work of saving the lives of the mothers and babies of the nation. Everywhere mothers flocked eagerly to the Health Congresses made possible through national and state appropriations under the act, often undergoing severe hardships to make the journey, and showing a spirit of co-öperation later revealing itself in results which place this new venture in the minds of many as a more noteworthy item than even the treasury surplus. In the final and formal report issued by the Children's Bureau will be found the way in which seven hundred thousand home visits were made by nurses who gave instruction to mothers in remote and isolated regions on pre-natal, infant, and child care. In several states such health information has been given in correspondence courses, and "Little Mother" classes have been organized to instruct young girls in infant care. Naturally it was toward rural districts that the work was primarily directed, and the infant death rate was reduced in 1927 by (approximate estimate) 25,000 babies who lived through the first year, the

chances of whose saving in 1921 would have been almost non-existent. In addition, the tragically high mortality of women in childbirth dropped in those six years and informed public opinion has found expression in improved state legislation and appropriations for maternity and infancy work. Even in Hawaii, the beneficent results of the Sheppard-Towner Act are reported as being evidenced in uniformly educational methods employed by physicians and public health nurses and by demonstrations in the home. Group instruction through lectures, motion pictures, and exhibits has been inaugurated, as well as graduate courses in pediatrics and obstetrics for physicians usually in conjunction with state or county medical societies. Each state accepts or fails to accept the act through its legislature, and designates its own administrative agency and executes its own program, though all plans must be approved by the Federal Board of Maternity and Infant Hygiene, which consists of the Chief of the Bureau, the Surgeon General of the United States Public Health Service, and the United States Commissioner of Education. Forty-five states and the Territory of Hawaii are co-öperating under the act. Only Illinois, Connecticut, and our own Commonwealth are still unconvinced. The foregoing is a brief résumé of parts of the report and is not to be interpreted as a defence of the bill on my part or a plea for its support. The provisions of this law come to an end June 30, and two measures have been introduced into the special session of Congress providing for the continuance of the work. If farm relief, the tariff, and re-apportionment preclude a discussion now, it is probable that similar measures will be brought forward during the regular session next winter.

SCHOOLS OF PUBLIC HEALTH

Harvard and Johns Hopkins Universities maintain schools of public health; Columbia and Pennsylvania, departments. They provide the scientific ground work of expert knowledge which underlies efficient health administration of the best types and thus prepare students for careers in public health. The graduates are trained in various branches such as the control of communicable diseases and industrial hygiene. They are, therefore, competent to advise national and civic health officers in matters of administration, in the carrying out of programs, and in industrial management. The course is well named and is one of the great additions to the progress of modern scientific medicine.

USE OF NEW SCIENTIFIC DEVELOPMENT

Medical education has achieved greater progress in the last twenty-five years than in any other similar period. It has been difficult alike for the general practitioner and the specialist to keep abreast with the rapid developments in every department. The addition of new methods of diagnosis and treatment, and the renouncement of others have called for constant readjustments in one's armamentarium, while the teachers of medicine have had to arrange and rearrange their courses to meet the swiftly changing conditions. One thing for us all to remember is that the great fundamentals remain the same and the new test or treatment is merely an addendum to the basic principles—rarely does it supplant any one of them. It has seemed at times to those of us who are clinicians that the report of a laboratory enthusiast has shaken our foundations. We may be likened unto the old fable of the dog crossing a brook with a piece of meat in his mouth, who when catching sight of its reflection dropped his substance to snatch at the shadow. The late Francis Peabody, who combined in such an eminent degree the wisdom of the clinician and the spirit of the investigator, once said to me that out of twenty laboratory emanations, no more than one proved helpful, but to get that one was worth all the failures. Where would we be if the laborants did not have uninterrupted opportunities to investigate the problems of medicine and surgery? While we among ourselves are weighing the probable value of every new test and discovery, eager for proof and ready with support when once assured, we should, of course, be very guarded in our statements to patients or the public until their value has been placed beyond question. Open discussion is not for the experimental phases, and silence then is the best help we can give our research workers.

It cannot be denied that each physician is an instructor of the public. He may not give lectures, radio talks, or write books and brochures, but he is, in his relation to his patients, an ever powerful influence on the public mind. As a member of one of the learned professions and supposedly an authority in his subject, his words are cherished and repeated. Naturally we hold dissimilar views on a variety of subjects, and it is well that we should, but we ought not to alarm our patients with controversial disquisitions. The sphygmomanometer, for example, is an instrument which has been the means of some information for the physician and much apprehension for the patient. As yet we know very little about its revelations, though we have some understanding of its high readings, a scantier of its low ones, and but slight idea of the variations in the middle register. We also know that the systolic pressure changes considerably from day to day, even from hour to hour. But that many injudicious statements are made by physicians must be true, else how has the almost universal fear of hypertension gained such headway? It is the systolic

pressure which worries the public, for they seem to have little knowledge of the more important diastolic. There is also a deeply rooted conviction that hypertension always means renal disease, an idea which has been fostered by some insurance examiners as well as physicians, because albumin and casts have been found, but we know that such a diagnosis must rest upon the blood chemistry. Hypertension, as we all appreciate, may exist for weeks, even months, and then disappear spontaneously. So many factors enter into temporary elevations that we must be careful what we deduce, much more what we say, especially upon one examination. It is not uncommon to have a patient come to the office for an examination and before he has been there many minutes to discover that his real objective is to ascertain his blood pressure. On more than one occasion it has been my experience to have a patient ask anxiously: "What is my blood pressure today?"—and on being told that it was, for example, 130, he has exclaimed, "Good, it was 140 last week at Dr. A's". Where did such notions arise? What induced the fear that haunts the patient day and night, makes him feel his own pulse, note the action of his pounding heart and rising rate as his worry increases? Some one must have talked about one sign alone, perhaps unrelated to other signs, dropped a hint about Bright's disease, and left the patient miserable, a prey to any suggestion, to any cult, and started him upon a round of anxious inquiry. A woman of forty went with her mother to the latter's physician, and as they were leaving, the physician asked the daughter, a comparative stranger to him, if she knew about her own blood pressure and suggested taking it, as he said it was an important factor which everyone should have investigated. She readily complied, and when he found the systolic pressure higher than he considered normal, he told her the reading and its implication, with an impressive warning that it must be lowered. He made his ominous statement upon one sign only and without further examination, without realizing that she was an introspective person much interested in symptoms and apprehensive of disease, and furthermore that she was in a state of intense anxiety at the moment over her mother's health. She returned home greatly agitated, not knowing what to expect, but fortunately consulted her own physician, who, only after several months of reassurance, succeeded in convincing her that she did not have hypertension, nor in fact anything else. That was twelve years ago, since which time she has been perfectly well without any signs suggesting disease. How can we offset the pernicious effects of such a dictum on the part of ill-trained and psychologically unwise practitioners, unless by using every available means to acquaint the public with a saner and safer interpretation of blood pressure, both high and low? Twenty-five or thirty years ago, the discovery of a cardiac murmur usually meant heart disease in the opinion of many physicians, and they gave their patients that diagnosis to carry about with them, if not in their hearts at least in their minds. Often, as Sir James Mackenzie pointed out many years ago, the discovery of a simple functional murmur caused the physician to give advice which changed an otherwise healthy child into a molly-coddle. Many, however, have lived through the years leaving their murmur behind or to find through the medium of improved cardiology that the once alarming sign has become meaningless. I admit that some of these murmurs require study and thought, but the important point is that there is no need for haste. Even if, after due consideration, it is decided that the murmur is organic, there is no necessity for taking all the joy out of the patient's life.

You have also noticed an increasing dread of angina pectoris. Is it necessary to use this ominous term when a simple and often satisfactory explanation will do as well, provided we are certain that it is organic angina? We have the disease to deal with anyway, so why add mental anxiety to the picture? Why not explain to middle-aged and elderly people with cardiac pain that their arteries are not as elastic as when they were younger and that when they make undue effort which calls for more blood, the heart cannot respond as readily as formerly? They learn that this is the case with several of their friends and are satisfied to lessen their pace, if the situation is carefully and tactfully explained to them, and to live within their limitations as their contemporaries do. Many other examples might be given but these will suffice to illustrate further what I mean in saying that we are individually instructors of the public, though speaking privately. Our opportunities are legion and many of the large-minded general practitioners, those who form the bulwark of our profession, are finding effective methods of meeting them.

MAGAZINES AND NEWSPAPERS

The League of Red Cross Societies publishes a magazine, *"The World's Health"*, and The American Medical Association its *"Hygeia"*; both print articles of high merit but they naturally have a limited circulation even among the more intelligent classes. Locally we have in addition to the circulars and pamphlets for general distribution issued by the State Department of Health, a newspaper and a quarterly known as *"The Family Health"*, published for the last twenty-five years in Athol. The president of one of the largest industrial plants in New England, employing thousands of the foreign born, told me that of the dozens of magazines in the library for operatives, "Hygeia" was reported as the most popular. We all have opportunities to suggest to employers of labor and to those

coming in contact with large groups the inclusion of such magazines in their reading-rooms. There are the daily "columns" of Dr. Evans, Dr. Copeland, and Dr. Wiley. Dr. Evans's is perhaps the most widely read and has undoubted value. The advice is wisely worded, and it is safe to say that no other similar medium has brought more patients to the physicians. The fact that there are increasing numbers of this type of medical publicity bespeaks an appreciation on the part of the newspapers of its importance and the desire on the part of the public for information.

ADVERTISEMENTS

It has been said with some truth that many of the laity derive much of their medical knowledge from the advertising pages of popular magazines. Digestive and constipation remedies, antiseptic mouth washes, gargles, skin foods, health breads, diabetic cures, rheumatism, headache, and blood medicines, all crowd the pages and each leaves the impression that the use of the particular remedy will free the patient not only from the malady for which he takes it but from other allied ailments.

The advertising agent has learned the value of pseudo-scientific language and because of the susceptibility of the public to slogans and half-truths adds bits of physiological chemistry or perhaps an anatomical chart. A certain fruit-grower displays a luscious lemon with the assurance that its constant use will free the consumers from the dangers of acidosis, leaving however the impression that it would be well to look for his name upon the skin of each lemon. A raisin-packer pictures his product with the caption, "Have you had your iron today?" Many of the illustrations occupy full pages done in striking colors, and the expense involved indicates their success. In the words of the renowned Colonel Sellers, "There's millions in it." We feared at one time that the radio was to be the means of greater publicity for worthless drugs and cures but the operators have generously stopped that form of advertising. On the other hand, it should not be forgotten that one of the prominent pharmaceutical firms has sponsored radio talks by some of our leaders in medical thought.

Another important duty is to explain away the results of certain misinformation about symptoms, diseases, and forms of treatment which have become the vogue of the moment. Valuable in this connection is the work of the American Medical Association in exposing spurious claims by various patent-medicine concerns. The results are published in the *Journal*, but who aside from physicians knows that a preparation is worthless? With its changed formula it continues on the market, taking the money, deluding the minds of the people, and often causing serious physical consequences. Should not our medical societies take steps to broadcast this information to the public?

MATERIAL AVAILABLE FOR LECTURERS

Our State Department of Health, assisted by a number of experts, is at work at the present time upon brochures for the guidance of its lecturers in general medicine and the specialties. This action evidences the Department's appreciation of the need of uniformity, but its path too is difficult because of changing medical beliefs. New York State has been a leader in this form of public instruction, and Pennsylvania, Ohio, Wisconsin, Washington, and Wyoming have established similar bureaus with similar available material. When the brochures are completed, it is probable that the Department will gladly distribute them, as it does its other literature, to those who are interested in giving concise information to various groups of the laity. Divergent opinions on diet, physical signs, and the most important points in treatment have to be considered. To tell one group that tonsillectomy is needless, and the next that it is a very important operation for the child's general health, confuses the community and shakes its confidence in our opinions. Controversial points should if possible be kept in the background until they have ceased to be controversial. Suitable directions can unquestionably be formulated, leaving the method of presentation to the good sense of those who have, with the exercise of proper care, been selected as lecturers.

For those who speak especially before schools and colleges sex hygiene is important though it must be handled with discretion and taste, as well as candidly and scientifically. The questionnaire recently circulated in the University of Missouri is a shining example of how the approach should not be made. Strange as it may seem, surveys of colleges have shown that fresh air is not as freely used as one would expect, and other forms of personal hygiene are being neglected.

MEDICAL MARTYRS

Physicians and surgeons throughout the ages have been rebuffed, ridiculed, and even reviled in their efforts to instruct the public. In America, Dr. Zabdiel Boylston of Brookline, associated with the Rev. Cotton Mather (himself not only a thundering divine but a practising physician), and assisted by Drs. Thomson and Robey, vaccinated 268 persons, of whom six died. It is interesting to note that Dr. Boylston began by inoculating his 13-year old son on the 27th of June 1721, and as Dr. Mumford justly says, "No earlier date in American medicine can truly equal it in importance and significance, and very few dates since". During all this time Boylston was obliged to keep himself in hiding and could hardly go on the street except by stealth. Cotton Mather's house, in

which smallpox victims were treated, was stormed by a mob and a lighted bomb was thrown into the patient's room, and later a bomb was thrown into Boylston's apartment. Finally the reformers succeeded in their task and the opponents admitted themselves convinced.

In 1847 Professor (afterwards "Sir") James Young Simpson of Edinburgh discovered the anaesthetic effects of chloroform on human beings. With his associates he performed operations under the influence of the new drug on about thirty people, using it in the extraction of teeth, for opening abscesses, and for various forms of neuralgia. He then began to employ it with marked success in his obstetric practice, for it should be remembered that Simpson was one of the first English surgeons to specialize in that branch. The point which I particularly wish to emphasize was the prejudice aroused against him by many of his contemporaries in Scotland since they considered pain during labor as a punishment that should be received in a meekness and in conformity to the edict from Eden, "in sorrow shalt thou bring forth children", any attempt to avert which was another temptation of the serpent and an impious endeavor to thwart the divine will. Simpson was attacked from the pulpit and passages from the Bible were quoted to prove the wickedness of his ways, but he met arguments of this sort by appealing to the same authority. "My opponents forget", he said, "the twenty-first verse of the second chapter of Genesis; it is the record of the first surgical operation ever performed, and that text proves that the Maker of the universe, before he took the rib from Adam's side for the creation of Eve, caused a deep sleep to fall upon Adam". Enlightened clergymen gave him, of course, their support, and the opposition to the use of anaesthetics in midwifery, which had been particularly bitter—pointing to the wickedness of trying to remove a part of the primal curse on woman—broke down when Queen Victoria gave her countenance to the use of chloroform on the occasion of the birth of Prince Leopold in 1853.

In the British Isles it required the atrocious murders committed by the besotted partners in crime, Burke and Hare, who sold their victims to the teachers of anatomy, to arouse the public and the English Parliament in 1831 to provide laws by which students might legitimately acquire sufficient subject for dissection. In 1829 when Burke and Hare were indicted, the furious storm of public indignation burst over the head of Dr. Robert Knox, the most successful British teacher of anatomy of his time, who wittingly or unwittingly had shared in the ghoulish traffic. Knox was hung in effigy in the public square while the threatening mob, urged on by crazed, half-naked women, filled the streets outside his lecture room and residence. Enveloped in a military cloak, he courageously moved at night through the noisy streets, unrecognized by those who sought to do him violence. A committee of prominent citizens was formed to sift the evidence, and it reached a conclusion that Dr. Knox was without blame, although it left a doubt in the minds of many people whether, if he had taken the trouble to inquire into the source of so many fresh specimens, he might not have been led to suspect that they were not obtained by the usual methods of the "Resurrection" men. Although he continued to teach for a time, the association of his name with the Burke and Hare scandal served to blast the career of this gifted student, who lost one appointment after another to which his attainments entitled him, and he finally degenerated into a medical hack. The teachers of anatomy were on the horns of a dilemma since they were limited to the bodies of executed criminals for their instruction and yet were expected to graduate medical students fully competent to perform the surgery of the British people. Repeatedly they explained their predicament to the law makers but without avail until the catastrophe which horrified the nation brought Parliament to its senses.

LEADERSHIP OF THE PROFESSION

Medicine has for years been one of the three learned professions and as such it should be a leader in all medical thought and action, yet I regret to say that it is sometimes led. About a decade ago, insurance officials and other laymen discovered that routine physical examinations were a vital part of diagnosis and were quite necessary if disease was to be detected in its incipiency, or if men were to be taught how to live in the face of physical impairment. They also discovered that physicians seemed more interested in the care of disease than its prevention, and to this group of the laity accrues the credit, if credit there be, of establishing institutes where individuals for a stated fee might be examined at regular intervals. Notwithstanding their emphatic statement that they did not treat their members and that their findings would increase the practice of the members' physicians, medical societies alarmed at the popularity and financial prosperity of these institutions appointed committees to investigate and if possible curb their activities. The writer served upon one of these committees which saw at once the uselessness of its efforts; the institutes were firmly established and met a popular need. If we had been quick to instruct our patients upon the value of routine physical examinations and had given them definite appointments for thorough annual or semi-annual inspection, we would have stopped the gap which keen laymen so readily saw and filled. Is it inertia or the old conservatism which held us back? Again I ask, is it commercialism to point

out to our patients their needs before they see them themselves or before some agency has usurped what are our prerogatives?

Another question which the laity of this state may possibly decide for us in the near future, if we do not as a profession take some action, is birth control. Shall zealous reformers outside our ranks teach us the rights and wrongs of this measure or shall we teach the laity? Within the medical life of most of us, birth control has been practised whenever disease has indicated the danger of continuing pregnancy, yet by what legal authority? Every doctor may give advice on contraception in cases with heart, lung, or kidney disease but makes himself liable if he displays apparatus. Within a year and a half, a woman physician who showed to a group of women patients some contraceptive paraphernalia with a distinct warning as to its dangers, was arrested and would have been punished but for the intervention of one fearless laywoman who personally paid the defending attorney's large fee and secured her release. As Dr. Dickinson, the secretary of the New York Committee on Maternal Health, pertinently asks, "Shall we leave the problem entirely to propagandists or shall we study the medical aspects of the situation?" For several years a group of earnest and intelligent men and women in Boston have been at work on the question and if we are not careful we shall be aroused from our slumbers to find that we are playing a secondary part. Where the Academy of Medicine in New York takes cognizance of this movement, should we not institute an official study? If a chapter of medical history is to be written, are we or propagandists to be the authors? If after organized investigation we reach the conclusion that such a chapter should not now be written, we shall have squarely faced our professional responsibility.

CONCLUSION

In thus presenting some of the existing mediums of public instruction and venturing to suggest other methods by which it may be enlarged, as well as the desirability of a quickened sense of our personal responsibility in the matter, you may think there is a strain of querulous criticism, which is certainly far from my intention. In the family circle, it may be both pertinent and salutary to analyze critically our past, to discuss our present status, and to formulate our plans for the future. The essence of my message cannot be better expressed than in the words of Dr. George A. Gordon: "The great mind is always a mind in society, and our relations one to another are so intimate and subtle and form such a network of mutual influences that no intellect however gifted could or would wish to free itself from the group or whole with which its activities are inset."

CARRIERS OF STREPTOCOCCUS HEMOLYTICUS IN RELATION TO CONTROL OF SCARLET FEVER IN SCHOOLS

BY EDWARD A. LANE, M.D.,* AND EDITH A. BECKLER, S.B.*

GRANTING the possibility, during the prevalence of scarlet fever in a school, of children who might be harboring the streptococcus of scarlet fever either as convalescent or otherwise immune carriers or as incubation carriers, one might consider the advisability under such circumstances of making cultural examinations and excluding all children found to be harboring a hemolytic streptococcus. This question has occasionally been raised by local boards of health.

In order to discover whether or not there was any justification for such a procedure, cultural examinations for hemolytic streptococcus were made on groups of school children in Arlington and Dedham. In Arlington three schools, the Junior High East, Junior High West, and Parmenter Schools were sampled. In the first named, scarlet fever had been prevalent in the school district and four pupils in one of the divisions of the Seventh Grade were out with the disease. There had been scarlet fever in the school district, but not among the pupils of the Junior High West, while in the case of the Parmenter Grade School the disease had been absent from both school and school district. In Dedham the incidence of scarlet fever had been very light with no reported cases for the previous six months in either school district or school of the Riverdale Grade School sampled.

Swabbing was limited to the throat. The swabs were brought in to the State Health Department Laboratory for plating immediately after completion of the morning's or afternoon's work. Cultures were grown on blood agar plates and the plates examined after 24 and 48 hours for hemolytic streptococci.

The children in the schools visited represent the average social strata. Those in the Parmenter School, Arlington, are possibly of a slightly more sheltered group than the others.

Of the total of forty carriers discovered, thir-

Cultural Examination of School Children for Streptococcus Hemolyticus in Arlington and Dedham

February 25 - March 6, 1929

School	Enrollment	Examined			Scarlet Fever during previous three months
		Total No.	With Strep.-Hem. No.	With Strep.-Hem. %	
Arlington	Pop. 28,804	197	20	10	29 scattered cases; 9 pre-school, 16 school, 3 post-school, 1 age unk.
Junior High East	431	97	11	11	9 cases in school district exclusive of 4 cases in grade 7.
Grade 7	(div.) 35	30	4	13	
Grade 8	" 33	26	2	8	
Grade 9	" 39	41*	5	12	
Junior High West	660				13 cases in school district
Grade 7	250	50	4	8	none
Parmenter School	194	50	5	10	none
Dedham	Pop. 15,868				
Riverdale School	220	100	20	20	none
Total		297	40	13	33 cases in Arlington

* Includes two from another division of same grade.

Note - The last day in school of the four cases in the Seventh Grade of the Arlington Junior High East was February 15 (2), February 18, and February 21.

*For record and address of author see "This Week's Issue," page 1368.

ty-three said that they had never had scarlet fever. In the Dedham school with no scarlet fever recently prevalent, eighteen of the twenty carriers had never had the disease, while in the Junior High East, with scarlet fever prevalent, eight of the eleven carriers had never had it.

In two of the schools, the Junior High West and the Parmenter Elementary Schools of Arlington, the additional information relative to previous tonsillectomy was elicited. As would be expected, 7 or 14 per cent. of the carriers were children whose tonsils had not been removed, while 2 or 4 per cent. were children whose tonsils had been removed.

CONCLUSIONS

Neither the class with four pupils absent for scarlet fever (13 per cent. carriers) nor the samples from the two Junior High Schools in districts in which scarlet fever had been prevalent (11 per cent. and 8 per cent. carriers) show any evidence of a definite relationship between the streptococcus hemolyticus carrier rate and the prevalence of scarlet fever when compared with the Parmenter School (10 per cent. carriers) and the Riverdale School (20 per cent. carriers) with no previous scarlet fever for three months or more in either school or school district.

Hemolytic streptococci appear to be fairly common among school children and of quite uniform prevalence at the time of year (February and March) when these examinations were made.

There would appear to be no justification for such simple cultural examination of scarlet fever contacts in schools for exclusion of carriers of hemolytic streptococci. Until a technique sufficiently precise to identify the scarlet fever organism and sufficiently simple for general application is developed, our control practice for scarlet fever must continue without such cultural aid.

Acknowledgment is due the school nursing services of Arlington and Dedham for their very helpful assistance.

HEALTH PROBLEMS OF WOMEN IN INDUSTRY

Under the Act of Congress establishing the Women's Bureau of the Department of Labor, the Bureau is authorized to formulate standards and policies to promote the general welfare of wage-earning women and to investigate and report upon all matters pertaining to this field. Standards recommended by the Bureau have been formulated after careful investigation and based upon principles advocated by recognized authorities in medicine, in public health, and in the solution of social and economic problems.

For the health of industrial workers, these standards relate to hours of labor of such length and so arranged as to conform to physical needs; safe, sanitary and reasonably comfortable workroom conditions; and an adequate wage.

In addition to studies relating to these rather generally recognized health needs, the Women's Bureau has published recently bulletins dealing with three specific health problems of women workers: Employment at night, industrial accidents, and occupational diseases.

The Bureau's study of the employment of women at night contains abundant medical and social testimony as to the injurious effects of night work. The loss of sleep involved, with its accumulated fatigue poisons, is as grave a menace to the body as insufficient food.

Additional physical evils are to be found in deprivation of sunlight, most valuable of natural tonics; in frequent injury to sight; and in a higher number of accidents due to the necessity of working under artificial light.

The report covers the history of night work throughout the world, showing the growth of information concerning its effects on the individual and on society, and the legislation that followed this knowledge; medical, social, and economic testimony concerning these effects; a discussion of the legal breakdown during the World War, and the return to more normal conditions abroad. The texts of the Bern and Washington Conventions for the abolition of night work are included.

It has been with mature and considered judgment, based on full knowledge of the facts, that 36 leading industrial countries of the world had practically eradicated the employment of women at night by the end of 1927, and that international measures to make its elimination general have been enacted. In America, however, only 16 States have any prohibitory legislation in this connection, and in many of these cases the regulation is limited to one or to a very few occupations.

Incidental information as to 4,367 women night workers, gathered by the Bureau from 12 States, shows nearly three-fourths of these employed for 10 hours or more a night and of these nearly a third working 11 or more hours. Weekly hours of about 70 per cent. ran from 50 through 55, and in most instances earnings were lower than the corresponding earnings on day shifts. Three-fourths of these night workers were native-born Americans, and three-fourths were young women between 20 and 40 years of age.

Study after study shows that it is the young married mothers who seek night shifts in order that they may care for their little ones by day. To their status is often added a heavy home responsibility and a general thoughtlessness concerning their welfare on the part of their employers, as shown in lack of seats, in shortness or complete absence of lunch periods, and in overtime. It is therefore not difficult to depict the intense strain on these young mothers and the danger the sapping of their energy foreshadows to the physique and training of the future citizenry.—*Mary Anderson, Director, Women's Bureau. U. S. Daily.*

NEW ENGLAND SURGICAL SOCIETY

THE STRENGTH OF THE HEALING WOUND IN RELATION TO THE HOLDING STRENGTH OF THE CATGUT SUTURE*

BY EDWARD L. HOWES, M.D.,† AND SAMUEL C. HARVEY, M.D., F.A.C.S.†

INTRODUCTION

THE function of a suture is to hold tissues in a certain position until the healing of the wound renders such artificial support no longer necessary. When this purpose has been served the material employed should be absorbed or if non-absorbable of such a nature and so employed as to be inoffensive. Because of the constant threat of infection which may render the non-absorbable suture irritative and liable to extrusion, catgut is the material in most common use.

There are then two factors in the sutured wound which vary inversely, the absorption of the catgut and the healing of the wound. At the time of the suturing of the wound, the wound is weak and the suture strong, while at the conclusion of a period of healing, the suture has disappeared and the wound has returned to its immediate normal strength. Accurate mensuration and comparison of these should give some indication as to the size and durability of the catgut necessary to ensure the proper control of the tissues during healing. The problem is not quite this simple, however, for the holding power of the suture is not dependent alone upon its strength but in considerable part upon the pull with which it tears out of the tissue in which it is placed; in other words, the strength of the tissue, and this upon successive days for the presence of the catgut may possibly have some effect upon the strength of the tissue itself.

EXPERIMENTAL

These factors have been studied by the determination of the tensile strength of catgut and tissue under varying conditions. The dog was used as the experimental animal, ether anaesthesia and strict aseptic technique being at all times employed. The breaking strength of the gut and the tearing strength of the tissue were determined upon a standard thread testing machine.

The first experiments were designed to determine the holding power of sutures of various sizes in fat, peritoneum, muscle and fascia. A stitch of the type to be indicated was taken in the tissue in question, the latter inserted in the tissue clamp of the thread testing machine and the point at which the stitch pulled out determined. The accompanying charts show the results obtained as compared with the breaking strength of various sizes of 20 day chromic catgut in the single strand.

In fat it is apparent that there is practically no holding strength and that 000 gut supplies a very ample margin above the holding power of the stitch.

In peritoneum the maximal holding power of the single stitch, while distinctly higher still remains below that of the finest catgut; of the mattress stitch below that of size 00.

In muscle, the tearing out of the single stitch occurs at a higher level, but still below the breaking strength of 000,20 day, gut. With the figure of 8 stitch this is slightly but not markedly increased.

In fascia, the anterior rectus sheath being tested, the holding power is markedly increased over that of those tissues previously examined and for the first time the catgut breaks in the sizes of 000 and 00 rather than tearing out of the tissue. It is interesting to observe that the placing of two stitches gives only a minor increment in holding power, presumably because the strain falls first upon one and then the other. The mattress suture gives quite a definite increase in the holding power of the stitch, probably as a result of the catching of several columns of connective tissue within the bite.

These experiments indicate the holding power of the suture at the time of the insertion, but it may well be that its presence and the damage done by its insertion causes a reaction in the tissue which as time goes on renders the latter more readily torn. In order to obtain some information concerning this possibility the anterior sheath of the rectus muscle was divided transversely and approximated with two single sutures of 0,20 day, gut for each 1 cm. of width. At one, two, three, four and five days, in successive dogs such repaired fascia was removed and tested on the thread testing machine in 1 cm. widths. The results are shown in the accompanying chart.

It is apparent that the initial holding power of the stitch falls off by one half in the first two days, then remains constant, until after the fourth day the increasing strength of the healing wound overshadows the holding power of the stitch.

It would seem then from these two experiments that small sizes of catgut with relatively low tensile strength are sufficiently strong to exert as much of a pull as the tissues will sus-

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The expense of this investigation was defrayed by Davis and Geck, Inc.
Read before the New England Surgical Society, New Haven, Conn., November 9, 1928.
†For record and address of author see "This Week's Issue," page 1308

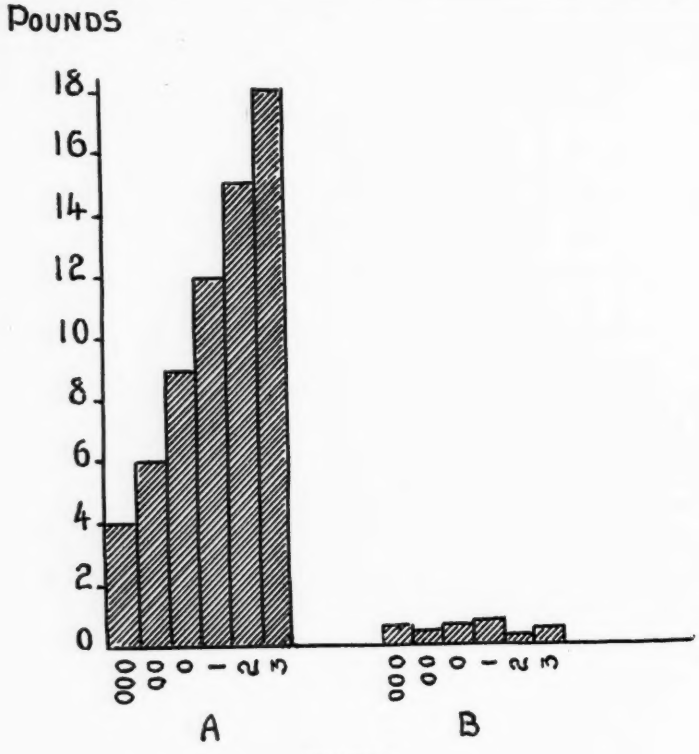


FIGURE I.
(a) Breaking strength of catgut, sizes as indicated.
(b) Holding strength of single stitch in fat.

tain. While this may be the case for the period under observation and while absorption tests indicate the persistence of the gut for approximately the time indicated by the manufacturers, it would be well to know with some degree of precision the actual rate of decrease in the tensile strength when the gut is embedded within the body. The results of such an experiment have been reported elsewhere[1] but may be again reviewed in this connection.

Strands of the different sizes and types of catgut* of sufficient length so that they could

*The catgut used in the experiments reported in this paper was chosen at random from the "boilable" variety manufactured by Davis and Geck, Inc.

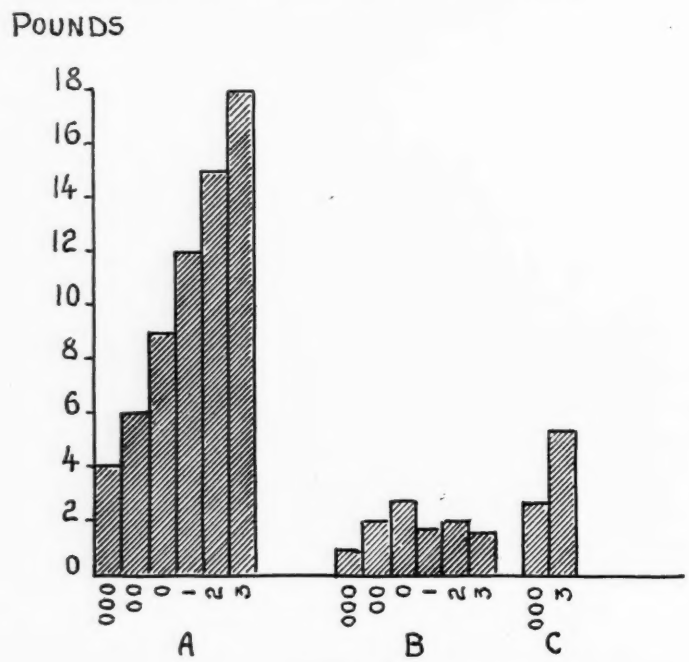


FIGURE II.
(a) Breaking strength of catgut, sizes as indicated.
(b) Holding strength of single stitch in peritoneum.
(c) Holding strength of mattress stitch in peritoneum.

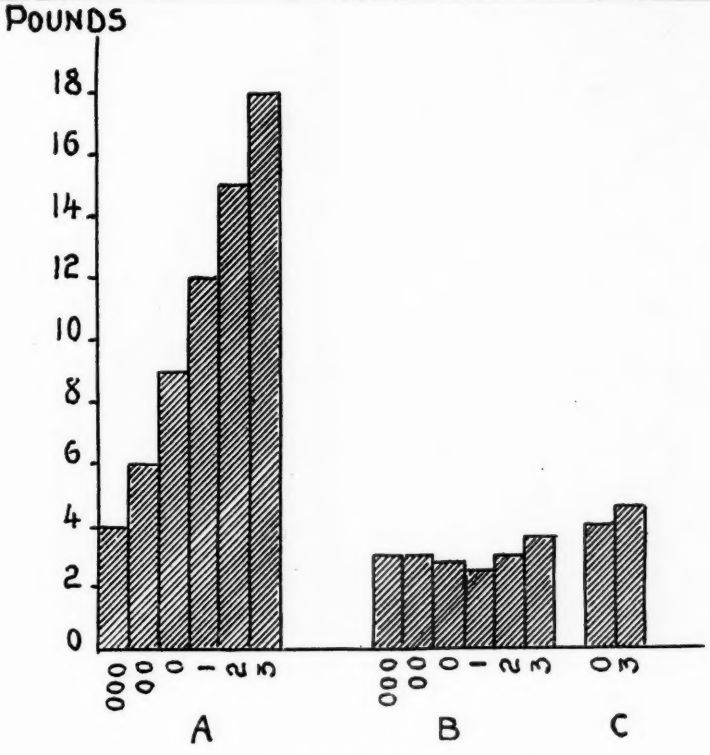


FIGURE III.

(a) Breaking strength of catgut, sizes as indicated.
(b) Holding strength of single stitch in muscle.
(c) Holding strength of figure-of-eight stitch in muscle.

be inserted in the thread testing machine were threaded upon a large basting needle and with this fed beneath the serosa of the stomachs of the necessary number of dogs. Care was taken that the gut should not be exposed on the peritoneal side or perforate to the mucosa. This particular site was chosen because of the ease of placing large quantities of the material in a well vascularized bed and the possibility of maintaining strictly aseptic conditions in the stomach wall.

Duplicate observations were made in every

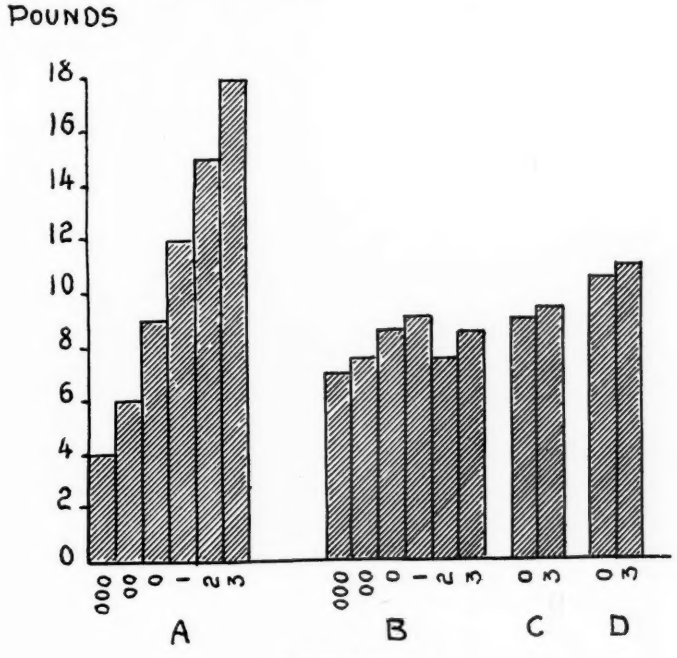


FIGURE IV.

(a) Breaking strength of catgut, sizes as indicated.
(b) Holding strength of single stitch in fascia.
(c) Holding strength of double stitch in fascia.
(d) Holding strength of mattress stitch in fascia

instance of implantation of the catgut, and at least six strands of the gut used broken for a determination of its normal breaking strength. These observations checked closely and the findings are shown in the accompanying chart.

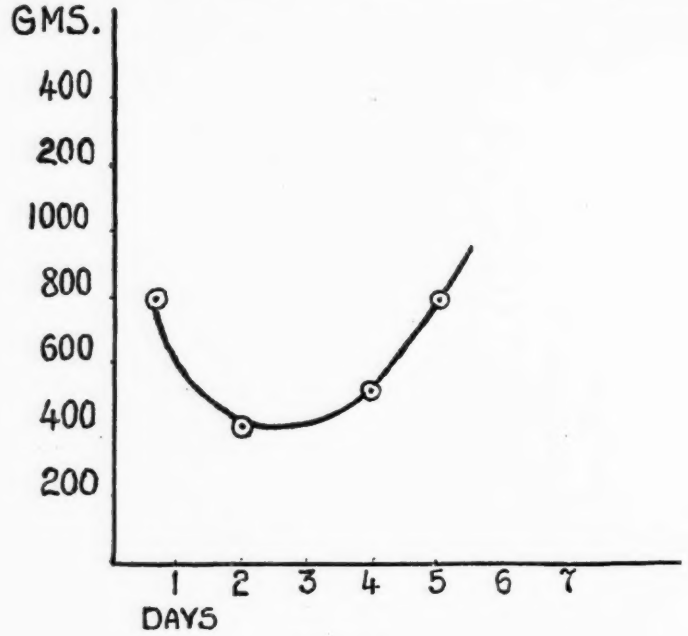


FIGURE V.
Decrease of holding strength of stitch in fascia.

Although the curves as plotted on the actual observations show minor degrees of fluctuation, a sufficient approximation is given in representing them as straight lines. The strength varies inversely at a constant rate as a function of the time and the rate of variation depends upon the degree of chromicization. A study of this chart gives an accurate conception of the tensile strength at any given time of the particular varieties of catgut tested.

It is apparent in order to determine the size and kind of gut to be used, that it is necessary to have some idea of the rate of healing of a wound. Studies of these phenomena have been reported upon elsewhere.[2] The experimental method employed was to make clean, incised wounds in various tissues of the dog, and approximate them carefully with 000 plain catgut which, the experiments on the decrease of strength in catgut demonstrate, disappears in something less than three days. A composite curve expressing the rate of healing in the skin, muscle, fascia and stomach wall is shown in the accompanying chart.

There is a lag period of between four and five days when the strength of the wound is merely that of the fibrinous adhesion of the surfaces of the wound. The tensile strength of the wound which is a measure of the proliferation of the fibroblasts begins to arise abruptly at the end of this time and approaches the maximum immediate strength of the wound in 10 to 12 days. A similar velocity curve of the heal-

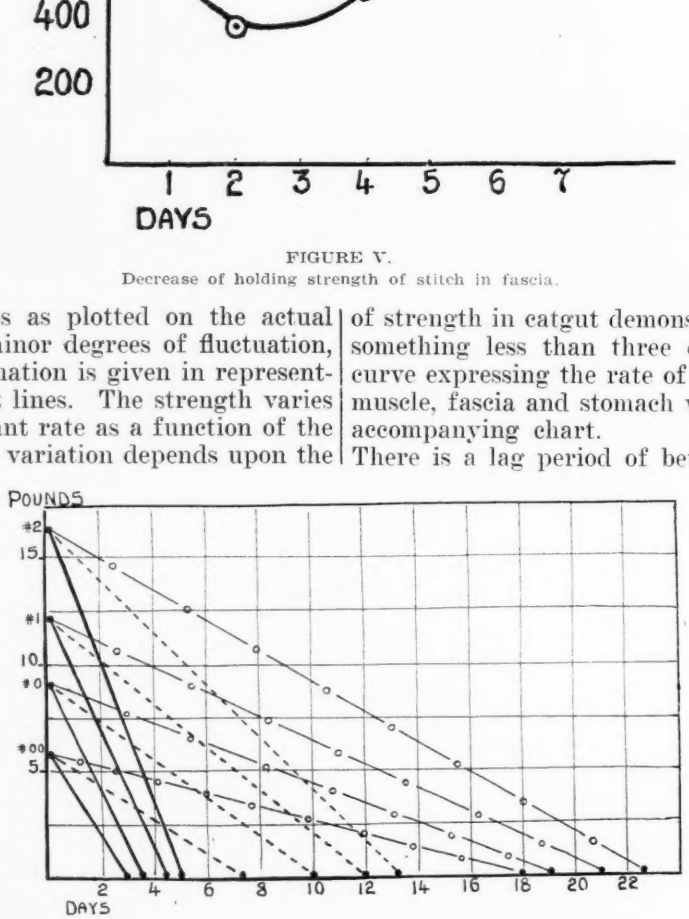


FIGURE VI.
Decrease in the tensile strength of catgut in a noninfected wound: solid line, plain catgut; broken line, ten day chromic; line with circles, twenty day chromic.

ing wound has been studied in the rat and probably represents a constant and universal phenomenon of growth—in this case of fibroblasts.[3]

Knowing then the rate of disappearance of catgut and the velocity curve of the healing wound, by superimposing the two upon a chart,

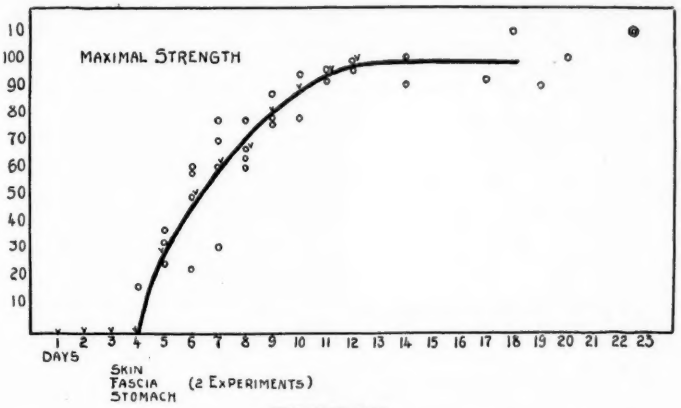


FIGURE VII.

The curve of the healing of a wound as expressed by its tensile strength.

where the ordinate represents the strength reduced to a common denominator of 100 and the abscissa the common function of time, an idea can be obtained of the size and degree of chromicization of catgut that is proper for the suturing of a wound.

DISCUSSION

Catgut, is of course a foreign body, and even in small amounts causes some degree of reaction in the tissues in which it is embedded. It possesses an advantage over non-absorbable sutures in that it is capable of digestion by this process and ultimately disappears. Where infection is present or occurs during the healing of the wound, the digestive process is intensified so that the gut irrespective of the degree of chromicization rapidly disappears with an early loss of its holding power.[1] Under the same circumstances the non-absorbable suture acts as a persistent nidus of infection which eventually leads to its extrusion.

The intensity of the reaction of the tissues to the catgut is directly proportional to the amount embedded and to the degree of chromicization. It is not an uncommon thing, where for instance No. 3,20 day, chromic gut has been used superficially in a wound to have the formation of a sterile abscess with the extrusion of the gut. It follows then that it is eminently desirable to employ the finest catgut with the least chromicization, and in the smallest amounts that will achieve the purpose for which it is employed.

From the first experiments reported in this paper it is apparent that the holding power of a suture varies greatly according to the tissue in which it is employed. It varies directly according to the amount of connective tissue that is included in its bite, and this directly as to the amount of connective tissue in the structure being sutured. In fact, in muscle and peritoneum the finest grade of gut easily surpasses in strength the holding power of the stitch. Only in the condensed connective tissue of fascia, do the finer grades of gut, No. 000 and 00, break before the stitch itself tears out and then on the single strand. No. 0 gut, the double strand of the stitch offering the additional factor of safety, is sufficiently strong to do

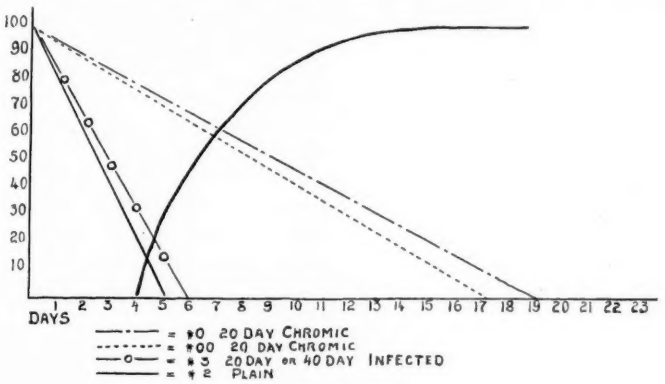


FIGURE VIII.

Relation of decreasing tensile strength of catgut to increasing tensile strength of wound.

all that any stitch can even in this structure. The doubling up of stitches within a small area or the use of figure-of-eight and mattress sutures increases the holding power, only by some 10-20%. So it is doubtful if this minor increase compensates for the concentration of gut and the increased reaction to it. It is supposed that the larger the size of the thread the less its tendency to cut through but this is not the case, within the limits of the sizes in common use, as shown in these experiments.

It follows therefore that the only tissues which ensure a considerable degree of holding power in the stitch are fascia and corresponding layers of connective tissue, such as that beneath the muscularis mucosae in the gastro-intestinal tract, the importance of which Halsted originally emphasized. Even in these structures considerable tension constantly maintained will undoubtedly lead to the cutting out of stitches and where this is the situation, interrupted sutures placed accurately and fairly closely together and if possible with imbrication of the fascial layers, offer the best opportunity for maintaining a closure. Where the strain may be very material or when infection is likely to lead to digestion of the gut at an early moment, additional through and through non-absorbable sutures offer the best safeguard against the potential disaster of a disruption of the wound.

How long it is necessary for the catgut suture to maintain its tensile strength and in what sizes and degree of chromicization this is best realized is indicated by a comparative study of the curves of disappearance of gut and the healing of the wound.

From this it is apparent that No. 0.20 day, chromic gives a perfectly safe overlap and that this corresponds with the previous conclusion arrived at, to the effect that this size is most appropriate for the suture of such structures as fascia and connective tissue planes on which intermittent strain or a constant minor strain may be thrown. The finer sizes, No. 00 and No. 000 of 20 day chromic also maintain sufficient tensile strength when considered in relation to the curve of healing, for the suturing of other structures and for the ligation of all but the very largest vessels.

SUMMARY

The holding power of a stitch is in direct proportion to the degree of condensation of connective tissue in the structure in which the stitch is placed. Only in fascia and similarly condensed layers of connective tissue is the holding power of the stitch greater than the strength of the finest catgut.

The holding power of a stitch decreases markedly during the first two or three days, and more rapidly than does the tensile strength of chromicized catgut during the same period. Therefore the initial preponderance of strength of the suture over its holding power is maintained.

The greater the amount of suture material embedded within a given area the greater the degree of reaction of the tissue. Therefore the least amount of gut necessary to sustain the approximation of the tissues until requisite strength obtains in the wound, should be employed.

By a comparison of the velocity curve of the healing wound and the curve of the disappearance of catgut embedded in tissue it is seen that No. 0,20 day, chromic catgut satisfies all requirements of the stitch in fascial and connective tissue layers, while even finer gut than this is sufficient for those structures in which the holding power of the stitch is less.

REFERENCES

1 Howes, Edward L.: Factors Determining the Loss of Strength of Catgut When Embedded in Tissue. Journal of the American Medical Association, Vol. 90, pp. 530-532, Feb. 18, 1928.

2 Howes, Edward L., Sooy, Joseph W., and Harvey, Samuel C.: The Healing of Wounds as Determined by Their Tensile Strength. The Journal of the American Medical Association, Jan. 5, 1929, Vol. 92, pgs. 42-45.

3 Harvey, Samuel C.: The Velocity of the Growth of Fibroblasts in the Healing Wound. The Archives of Surgery, April, 1929, Vol. 18, pgs. 1227-1240.

Discussion

Dr. A. G. Rice: *Mr. Chairman and Members*—It seems to me that this is a very timely paper. I think all of us have been questioning a little bit, certain things about our catgut; we have given up certain varieties, and I feel that there is a tendency to use the smaller sizes. As far as I can make out, we have arrived at that tendency through clinical experience, and here seems to be proof which bears out the clinical observations.

The most interesting thing to me is this crossing of these two curves, showing that as the catgut loses its tensile strength, the wound regains a corresponding amount of strength, so that they apparently cross at the time when we have been accustomed to say that the wound is healed enough, for instance, to allow a patient out of bed.

It seems to me, however, that there must be some other factor concerned here as well. We know, I think, that excessive moisture, for instance, will vary the loss of tensile strength of catgut, and it is perfectly feasible to believe also that an excessive amount of blood in a wound may do the same thing. In other words, I can't help feeling that the human factor enters in here to a considerable extent; that is, the man who puts in the suture has something to say about the healing of that wound and the tensile strength of his catgut. If he is careful and gets good hemostasis, he is probably going to protect that catgut to a certain extent which he otherwise wouldn't, so that its tensile strength will last a little longer.

Then again, if he ties these sutures too tightly and strangulates a certain amount of tissue,

it seems to me he is going to delay his healing, irrespective of the kind of catgut that he happens to be using, and we all know—and have for sometime, of course—when we have had occasion to reopen an infected wound, that the catgut has not only lost its tensile strength but many times is entirely lost; we never see it, so that we know it disappears fairly fast in the presence of infection.

I have been very glad to see this reduced to a mathematical basis. (Applause.)

DR. E. L. HUNT: Mr. President, it seems to me that there is another point besides what is shown in those diagrams that is important. A good many times we have bellies that are very hard to sew up, that we have to use a good deal of tension to get together, much less to hold together afterward. The immediate vomiting period which follows in those cases must put a tremendous strain on those sutures. It seems to me that we could not deduce from those figures that the No. 00 chromic would hold those wounds in that difficult period. It strikes me that we need something that is stronger than that in a great many cases.

I would like to ask Dr. Harvey if his experiments have any bearing upon that immediate problem of the first 24 or 36 hours?

DR. G. W. BREWSTER: I would like to ask Dr. Harvey how he closes the abdominal wall; what he uses for the abdominal incision?

DR. JOHN HOMANS: I should like to make the observation, which I am sure all of you will have made, that when a wound opens after operation it is usually because it is somewhat infected, and in that case there is every reason to believe, according to Dr. Harvey, that the sutures will have been absorbed very quickly and also that the tissues will not themselves have healed. However, irrespective of that, it seems to me that Dr. Harvey's experiments offer a very good reason why in every single abdominal wound some form of silkworm gut suture should be used to support the absorbable sutures over the critical period.

DR. R. B. OBER: Recently in our hospital we have confined ourselves to the use of chromic catgut entirely, going from No. 00 to No. 2. I would like to ask Dr. Harvey if he would approve of that for hospitals in general?

DR. S. C. HARVEY: I am very glad to see that the discussion brings out two or three points which perhaps I should have emphasized. In the first place, the thing that Dr. Rice has mentioned is of course very important. We are dealing here with wounds which, because they are experimental, are handled exceedingly carefully. Of course it also follows that the operative wounds in the human subject should be handled exceedingly carefully. These wounds are not wounds which have been traumatized, nor is there any blood clot between the surfaces, and if either of these did obtain we would have entirely different results.

A second question was in reference to the use of chromic catgut and the size of it one should use in the abdominal wall. Dr. Homans, I think, has already answered that question. My own rule is that wherever one can foresee a large amount of strain being thrown upon the wound, and particularly if there is any possibility of infection, one should always use stay sutures. I do not believe that you can count at all upon the closure in layers with chromic catgut for holding an abdominal wound which is infected or in which there is an excessive amount of strain. The latter part of this statement may sound somewhat in contradiction of what I have said before, but the point is that if the wound is not infected and yet bursts open, you will find, I think invariably, that the sutures have not broken but have torn out of the tissues. As a matter of fact, in all except fascia and bone, where one can actually place sutures through very dense material, the suture will tear out of the tissue long before it breaks.

In regard to the elimination of other catgut, personally I use in the ligating of small vessels practically nothing but the finer grades of chromic catgut, that is No. 000,20 day, chromic catgut, which is as fine as silk. For other purposes I employ nothing larger than a No. 1 chromic and customarily No. 0.

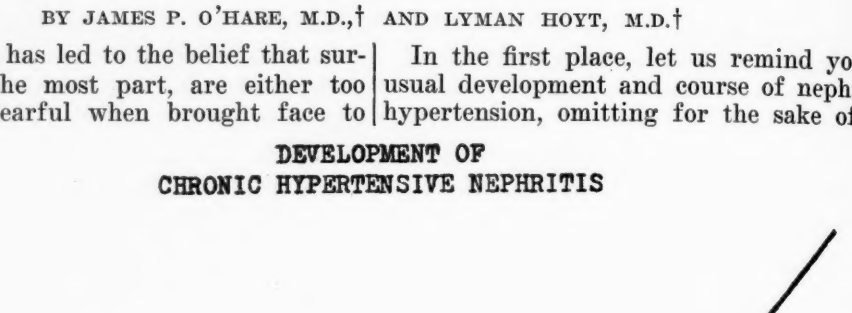
SURGERY IN NEPHRITIC AND HYPERTENSIVE PATIENTS*

BY JAMES P. O'HARE, M.D.,† AND LYMAN HOYT, M.D.†

EXPERIENCE has led to the belief that surgeons, for the most part, are either too careless or too fearful when brought face to face with possible surgery in a nephritic or hypertensive patient. Without doubt a better understanding of the medical problems involved in the individual case would enable the operator to steer a middle course more satisfactory to himself and to his patient. To acquaint you with some of the medical phases of the question is the object of this discussion.

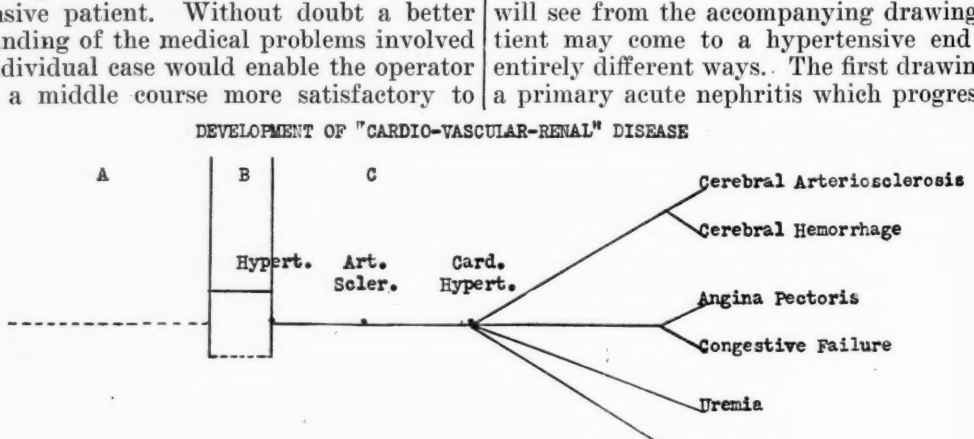
In the first place, let us remind you of the usual development and course of nephritis and hypertension, omitting for the sake of clarity, the cross currents and complications. As you will see from the accompanying drawings, a patient may come to a hypertensive end in two entirely different ways. The first drawing shows a primary acute nephritis which progresses into the sub-acute, sub-chronic and chronic stages. Bear in mind that many patients never reach this sub-chronic stage because they get entirely well or—in the rare case—die before reaching it. The onset of the sub-chronic stage is characterized by a beginning rise in blood pressure and a beginning fall in renal function. The

DEVELOPMENT OF
CHRONIC HYPERTENSIVE NEPHRITIS



B. P. = Blood pressure
R. F. = Renal Function

DEVELOPMENT OF "CARDIO-VASCULAR-RENAL" DISEASE



A = Non-hypertensive Stage
B = Fluctuating Stage
C = Hypertensive Stage

*From the Medical Clinic of the Peter Bent Brigham Hospital—Boston.
Read before the College of the Surgeons—October, 1928.

†For record and address of author see "This Week's Issue," page 1308.

blood pressure tends to progress gradually to higher levels over months and years, occasionally reaching great heights. As a rule, however, death occurs before the extremely high pressures seen so frequently in the second group of patients is reached. With the rise in pressure there is a gradual—perhaps intermittent—fall in renal function until death occurs from uremia, from a cardiac or vascular disorder or, all too frequently, from an intercurrent infection.

In patients who are first discovered to have hypertension after 40, the course of the disease is quite different. It is illustrated in the second drawing. This shows that the disease is not primarily in the kidneys, as we used to think, but in the blood vessels. Early vascular spasm produces increased blood pressure and more or less generalized small blood vessel sclerosis. Cardiac hypertrophy follows. Then the process progresses along any one or any combination of the lines indicated. Death may occur from cerebral hemorrhage, angina pectoris, congestive heart failure with edema, chronic nephritis or diabetes. The mere fact that a patient has hypertension and albuminuria is no index that he has a real nephritis and in no way precludes the possibility that he may die of a cerebral accident or heart failure. That a patient has angina pectoris should not keep your mind focussed entirely on the heart. Each and every case should be regarded as a generalized vascular disorder and the disability of each part of the vascular tree determined, as far as is possible.

Let us now consider briefly the question of anesthetics in renal and hypertensive patients. Ether, as you know, produces a primary rise in pressure during the period of excitement. This can be offset somewhat by a preliminary injection of morphia. After full anesthesia the pressure falls to normal or perhaps somewhat below this level. The more marked fall in prolonged operations is undoubtedly due not to the anesthetic but to the operation itself. Oxygen with ether may keep the pressure elevated. Ether undoubtedly irritates the kidney but, here again, some of the effects attributed to the ether are due to other things. For instance, it is well known that after tonsillectomy under ether in acute or sub-acute nephritis there is a temporary lighting up of the renal lesion. It is not so well known that a similar reactivation occurs after a local anesthetic. The explanation is, of course, not the anesthetic but the toxins or bacteria from the dirty, sloughing wound. Undoubtedly a similar, perhaps less marked, condition occurs after other operations.

Chloroform is a drug that never should be used in a hypertensive patient because of its depressant action on the heart. The action of ethyl chlorid is much like chloroform although less marked.

Nitrous oxid and oxygen is supposed to produce a decided rise in blood pressure. The degree of rise and the possibly dangerous effects have been, we believe, much exaggerated. Except in cases with extremely high pressures, especially high diastolic pressures, this form of anesthesia is reasonably safe.

Experience with ethylene in this hospital has been very limited. What we do know of this anesthetic does not seem to prohibit its use in nephritic or hypertensive patients.

Spinal anesthesia with novocain has a marked hypotensive effect unless counteracted by a preliminary injection of ephedrin. This form of anesthesia would seem to be fraught with grave danger, not merely because of its hypotensive action, but especially because in an already hypertensive patient the preliminary rise of 40-50 mm. due to the ephedrin might precipitate a vascular accident or cardiac break before the operation.

Local anesthesia, as with novocain, is, of course, the least objectionable in renal or hypertensive conditions, other things being equal. The operation may not, however, be feasible with this method. It should be borne in mind, too, that while a patient may suffer no pain with this anesthesia, the psychic effect of knowing what is going on, etc., may cause a dangerous rise in pressure which would more than offset the risks of a general anesthetic. Then, too, the operation in most hands is, of necessity, slower. Again there is the matter of the adrenalin that is usually combined with the novocain. Hypertensive patients are peculiarly sensitive even to small amounts of this drug and very rapid and dangerous elevations of pressure may follow its injection. In two patients of ours a rise of 100 mm. in the systolic pressure followed immediately after giving 1 cc. sub-cutaneously. Both had terrific attacks of angina pectoris with pressures reading about 290 mm. The use of adrenalin should be forbidden in patients with a systolic pressure over 180 mm.

Surgeons having to operate on hypertensive patients should also realize that such patients, because of their poor cerebral circulation and their vaso-motor instability, are somewhat more liable to surgical shock than normal patients and that they may bleed more.

Fortified with such general knowledge of renal and vascular problems, the surgeon should study carefully his particular patient from these angles as well as from that of the more obvious surgical lesion. It does not help much to perform a fine bit of surgical technique and have the patient develop uremia or die of heart failure 24 or 48 hours later. The first question the surgeon should ask himself is whether the operation is one of necessity or one of choice. In some cases operation is of such immediate and vital necessity that but scant consideration can be given to the nephritis or hypertension other than to select carefully the best anesthetic and plan to work as carefully and expeditiously as may be. With the possible exception of acute

severe hemorrhage, no emergency is so great that one cannot take the blood pressure and examine the urine. It is indeed extraordinary how often even these two simple tests are omitted.

If the operation is one of choice, it should be a very simple one and performed only in the mildest form of nephritis, or in mild or at most moderately hypertensive cases.

Once the decision to operate is made, what guides has the surgeon as to the probable outcome and what special methods should be used in the particular type of case? It is, of course, assumed that the operation will be performed skillfully and rapidly. The longer the operation and the more anesthetic used, the poorer may be the result.

In acute and sub-acute nephritis, and in acute exacerbations of chronic nephritis, no operation should be performed, if possible, while the volume of urine is low. Post-operative vomiting may decrease the urinary output still more and uremia ensue. In the presence of an active nephritis, vomiting in any great amount should instantly indicate the need for giving fluid by rectum, sub-cutaneously or intravenously. Local anesthesia or gas oxygen is preferable to ether, although in many cases other considerations may outweigh the disadvantages of ether. In preparation of patients with an active nephritis, the increased tendency to acidosis should be counteracted by full alkalinization. This may also be indicated after operation.

If such precautions are taken, the average case of acute nephritis should withstand skillful quick surgery reasonably well. That this is so is indicated by an analysis of the acute and sub-acute nephritic patients that have been subjected to various forms of surgery at the Brigham Hospital. Our series consists of 26 cases with only two deaths—one due to bichloride of mercury and the other to empyema. Except for these two, in which there was little hope from the beginning, these patients went through their operations about as any patients with normal kidneys. The only possible exception was the fact that the urine sediment was definitely worse post-operatively in 9 of the 26 cases.

Let us for a moment skip the chronic nephritis patients and consider the vascular hypertensive group. While it is true that patients with high systolic and diastolic pressures are usually poor risks, it does not follow that the level of the pressure alone is a safe guide. An individual with a pressure of 170/100 and a history of cardiac pain or signs of chronic myocarditis may be a much poorer risk than one with 230/130. All the elements in the given case must be carefully weighed. High diastolic pressures, pulsus alternans, gallop rhythm and marked retinal arteriosclerosis are bad signs.

Given a patient with vascular hypertension, the surgeon should plan his operation carefully so that a successful result may be obtained in the shortest possible time. With pressures that are very high, novocain alone or ether is the anesthetic of choice. Adrenalin should not be used with the novocain. If the local anesthetic is used, the pressure raising psychic effects should be offset by morphin or morphin and scopolamin. If the pressure is only moderately elevated, gas oxygen may be the anesthetic selected. Chloroform and ethyl chlorid should not be used and, in the light of our present knowledge, spinal anesthesia seems contraindicated.

During the operation the blood pressure should be watched closely as a guide to the reaction of the circulation to the operation. The surgeon should be ready to support the heart by digitalis or caffein, or to stop long enough to give hypodermoclysis, intravenous saline, or transfusion. More than the usual pains should be exercised to stop bleeding. With care, these patients withstand operation reasonably well.

That this is so is indicated in our series of 68 patients with vascular hypertension with pressures varying from 150/90 to 245/175. These patients were for the most part subjected to major surgical procedures. The type of surgery is indicated by the following record of the ten most common operations. They are listed in the order of frequency and the figures following each represent the total number of such cases in the group of 68 hypertensive patients. Cholecystectomy (13), thyroidectomy (13), diabetic amputation (7), pelvic operations (6), prostatectomy (4), gastric resection (4), gastro-enterostomy colostomy (3), nephrectomy (2), and tonsillectomy (2). Out of 68 patients 53 had a general anesthestic—ether or gas oxygen. As far as we could see, the anesthestics produced no unusual effects in these cases except possibly in 9 of the 30 ether patients whose urine was definitely worse after operation.

Death occurred in seven of these 68 patients and in only one of these could it be attributed to the vascular system. This was a man of 68 who was suffering from chronic myocarditis and had a gastro-enterostomy with local anesthesia. He died from heart muscle failure. The other deaths were due to peritonitis (2) and intestinal obstruction (4).

As far as we could see, the post-operative recoveries and convalescence were ordinary except in 8 patients who showed an abnormal amount of bleeding.

The chronic nephritis patient is undoubtedly the poorest surgical risk because he combines all the risks of the previous group with the addition of decreased renal function. However, even he may pass through carefully done surgery without trouble if his function is not too low. The tests of renal function are, therefore, the guide for the surgeon and no hypertensive patient with albumin and casts in the urine should be operated upon without at least a blood urea or non-protein nitrogen determination. If possible,

the phthalein excretion should also be done. A patient with a blood urea nitrogen of 35 mgm., or over, is a poor risk, as is also one with a phthalein excretion of 20% or under. When it is necessary to operate on such patients, gas oxygen or local anesthesia should be used, alkali should be administered for three days before operation and possibly after operation, and the excretion of urine kept above 1500 cc by forcing fluids by mouth, by rectum, under the skin, or by vein.

In confirmation of the above remarks on the operability of chronic nephritis patients, let us cite our statistical evidence. There were 21 such cases subjected to operations quite comparable to those mentioned in the vascular hypertensive group. By contrast to the 10 per cent. mortality in the latter group, 33 1-3 per cent. (7 cases) of our nephritic patients died. Furthermore, in 6 out of the 7, death could be attributed in whole or in part to renal toxemia. The other patient died from coronary sclerosis. Four of the patients who died had ether anesthesia and in these four the urine was naturally worse postoperatively. The only other element interfering with normal recovery was excessive bleeding, which occurred in four patients.

In conclusion, we would say that a patient about to be operated upon, and having any form of nephritic or hypertensive disease, deserves a pre-operative diagnosis of his medical ailment and an evaluation of the degree of impairment of the organs involved. He deserves an intelligent, skillful, rapid surgeon who understands the medical problems involved as they apply to that particular surgical patient. In such hands, unless he is unfortunately afflicted with marked vascular or myocardial impairment, he should feel that his chance for recovery is almost as good as the patient without nephritis or hypertension. If chronic nephritis with hypertension is present, the prognosis is definitely worse. The degree of renal impairment indicated by the phthalein excretion or the blood urea nitrogen is usually the determining factor.

INIENCEPHALY

Report of a Case

BY BERNARD H. APPEL, M.D.,* AND J. KASANIN, M.D.*

INIENCEPHALY is a developmental condition characterized by imperfect formation of the occiput in the region of the foramen magnum. The occurrence of the condition is extremely rare. First described in 1836 by St. Hilaire[1], who reported three cases, the subject received no further attention until 1897. Lewis[2] then reviewed 25 cases which he had collected from the literature. In 1904 Ballantyne[3] reported seven additional cases. Dorland[4], in 1905, reported a case and mentioned the presence of two additional cases in the museum of the University of Chicago. The last mention of the subject was by Welz and Lieberman[5] who in 1927 reported one case. The extreme rarity of the condition is apparent in the relatively small total of 39 cases which have been reported to date.

The cardinal signs of Iniencephaly are:

Incomplete formation of the foramen magnum,
Retroflexion of the head and
Spina bifida, which however may not be present in all cases.

Lewis[2] discusses the condition under two headings: Iniencephaly clausus in which the celphalo-rachidion cavity formed by the bending back of the head was complete and contained the entire brain; and Iniencephaly apertus in which there was either a small or large encephalocele; some of the cranial contents lying outside of the cephalo-rachidion space.

The etiology of Iniencephaly has been discussed from various theoretical aspects. The widest acceptance is given to the theory that the causative factor is the change in the amniotic fluid pressure. Ballantyne[3] offers an explanation of the actual mechanism operating in producing this condition. There is a stage of ontogenesis corresponding to the third week in which there is a normal retroflexion of the embryo corresponding to that found in iniencephaly. Under ordinary circumstances the embryonic retroflexion is quickly replaced by normal flexion of the spine in the fourth week. But if for some reason the uterine pressure or more probably amniotic pressure is brought to bear upon the retroflexed embryo the embryonic retroflexion does not become corrected, the bending of the spine is fixed and iniencephalic state is produced. The fetus in which this state occurs is as a rule premature and dead. Delivery may occur any time from the fifth month to full term. The majority of cases, however deliver in the eighth month.

Baby M., age 5 weeks, was referred to us on November 14, 1928 on account of retraction of head. Father and mother are Italians, both in good health. No history of nervous and mental diseases in the family. Patient is the second child, the other sibling is in good health. No miscarriages or abortions. The delivery was normal, easy labor, birth weight 7 pounds. The baby was cyanotic at birth and had to be resuscitated a number of times before it breathed

*For record and address of author see "This Week's Issue," page 1368.

normally. At the present time the baby is feeding on breast milk every three hours and weighs 9 pounds, gaining weekly and doing very well. Mother states that she noticed that the baby has had a retracted head since birth. The mother is able to push the head forward, but as soon as it is released the head assumes its original position of retroflexion.

The patient is a well developed and well nourished white female infant. There is very marked retraction of the head backwards so that the chin points upward. The head and trunk make an angle of 145. When the infant is placed on its abdomen it retracts its head backward. The head can be flexed so that the chin touches the manubrium sterni but

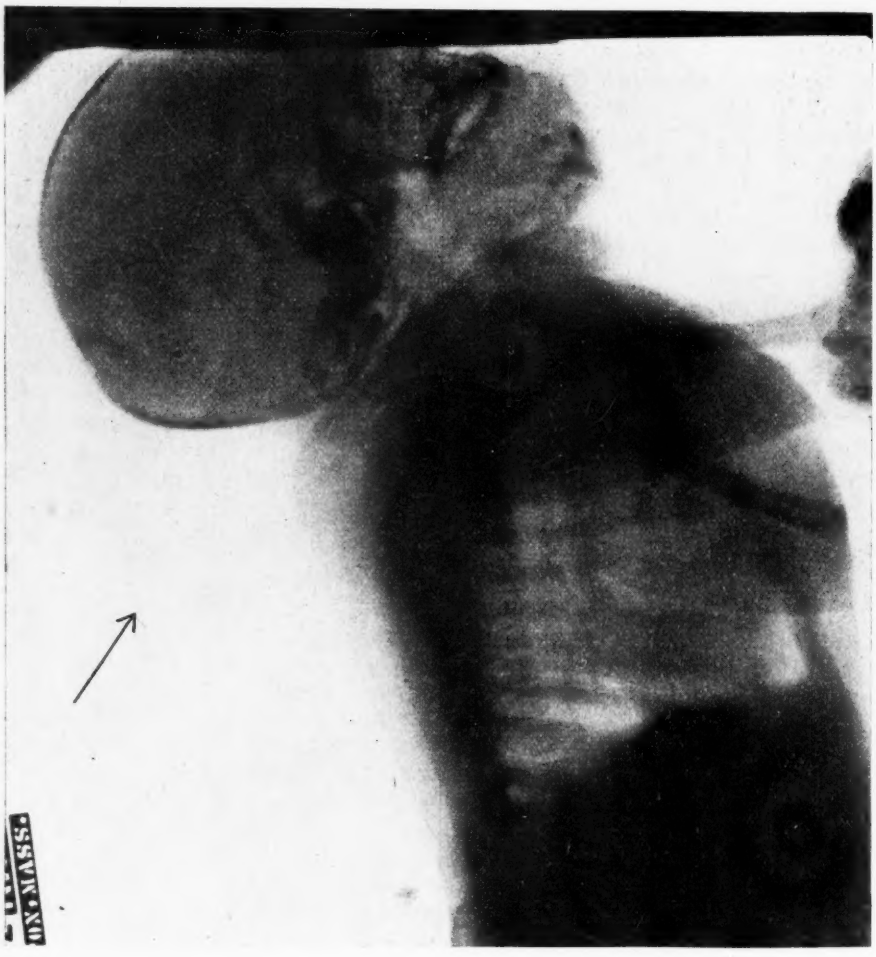


FIG. 1. Illustrating the marked retroflexion of the head.

as soon as the pressure is released the head tilts backward. The skin is negative. The circumference of the head is 11 inches, it is somewhat oxycephalic in shape and the face has a tendency toward mongoloid features with broad cheek bones, ruddy complexion and slanting eyes. The anterior fontanelle is almost closed. Posterior fontanelle closed. No cranio-tabes. Ears normal. Throat negative. Neck short, no glandular enlargement. Heart and lungs normal. Abdomen—Liver edge felt below the costal margin. Spleen not palpable. Genitals negative.

The neurological examination shows the following data: The pupils are small, round, equal and react well to light. Examination of fundi shows clear margins of both optic discs. No cherry red spots observed. Cranial nerves negative with the exception of a slight facial asymmetry with perhaps a slight flattening of the left side of the face. There are no spasticities, no palsies. Tendon reflexes are present. There is a bilateral Babinski as one would expect in a small infant. Lower extremities showed no evidence of any spastic or flaccid paralysis.

An x-ray of the cranium and spine showed an incomplete formation of the foramen magnum. No evidence of deviation from the normal in the cervical or dorsal spine.

One possible explanation of the retroflexion of the head may be as follows: There are muscles which originate at the anterior aspect of the cervical vertebrae and insert around the anterior part of the foramen magnum; there is also another group of muscles which originates from the posterior surface of the cervical vertebrae and is inserted around the posterior part of the foramen magnum. Thus we have antagonistic groups of muscles. In this particular case there is incomplete formation of the foramen magnum especially around its anterior part so that there is no attachment of the anterior muscles of the neck around the foramen magnum. Naturally the posterior group of muscles pulls the head backwards.

The case is of peculiar clinical interest not only on account of its rarity but also because it is apparently the only case which has lived after delivery. The mild degree of iniencephaly

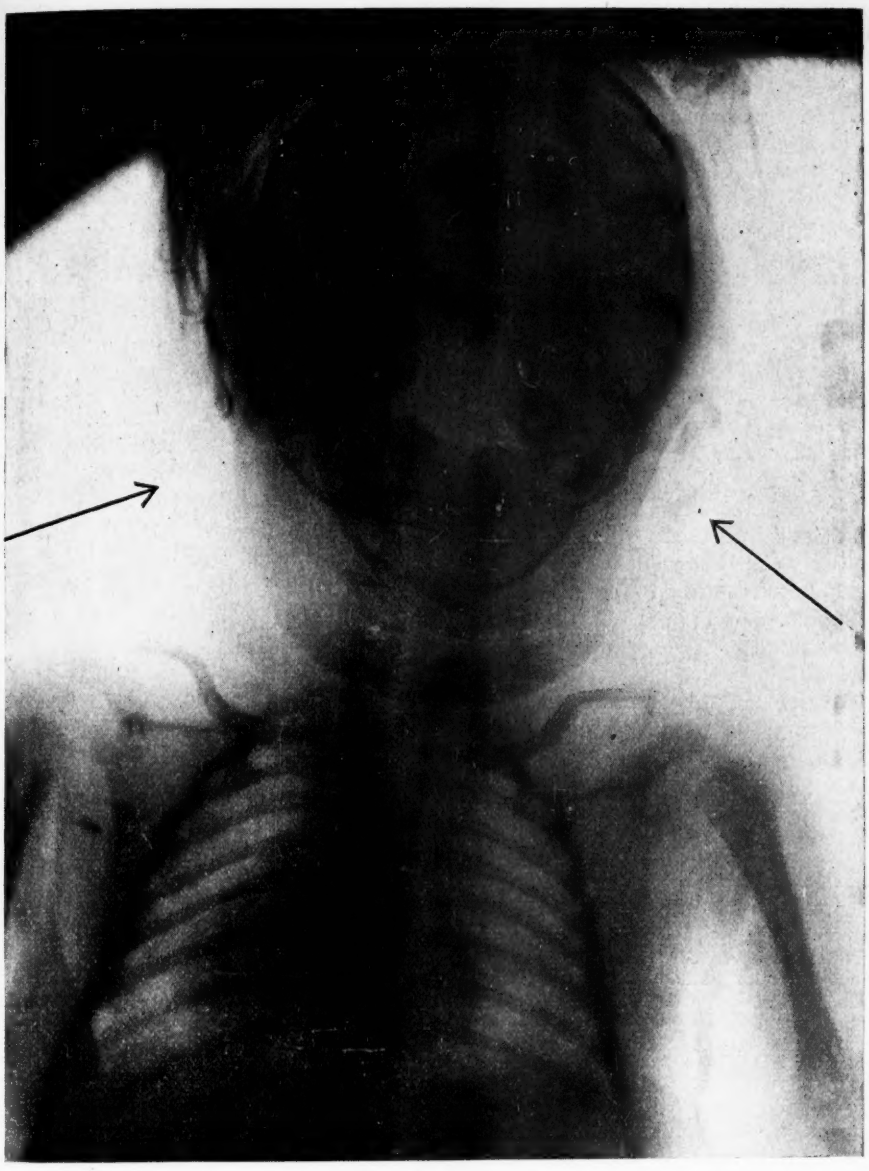


FIG. 2. Illustrating the marked enlargement of the Foramen Magnum.

may perhaps be the reason this child has survived.

Treatment is entirely palliative. A removable neck brace has been fitted up which acts as a support to keep the head in erect position.

REFERENCES

1 I. G. Saint-Hilaire: Historie des anomalies. 2:310, 1836.
2 Henry F. Lewis: Iniencephalus. American Journal of Obstetrics. 35:11. 1897.
3 J. W. Ballantyne: Manual of Antenatal Pathology and Hygiene. 3:272. 1904.
4 W. A. Newman Dorland: Iniencephalus—A Cause of Extreme Dystocia. Surgery, Gynecology, and Obstetrics. 41:2-80. 1925.
5 W. E. Welz and B. L. Lieberman: Iniencephalus with report of a case. American Journal of Obstetrics and Gynecology. 13:184. 1927.

THE NINHYDRIN FLOCCULATION TEST FOR PREGNANCY*

BY MAX DAVIS, M.D.†

IT is very frequently of great interest and importance to both patient and physician to know of the existence of a pregnancy at as early a period as possible. The early diagnosis of pregnancy, however, has been, and still is, a difficult problem. At the present time, the so-called "presumptive signs" may lead the physician to suspect the condition, but very frequently he cannot be positive until the patient has re-

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turned, after a few weeks, for a re-examination. This period of waiting is a loss of valuable time in cases in which pregnancy is contraindicated and a source of nervousness and uncertainty to women whose plans might be entirely changed if they were pregnant. Furthermore, the differential diagnosis between pregnancy and some other form of abdominal tumor is often of vital importance as regards the necessity, or lack of it, of operative interference. For these various reasons, many attempts have been made to develop dependable tests which would give this necessary information at a time when our ordinary clinical diagnostic methods could not furnish proof positive of a pregnancy.

Various types of tests have been suggested, but most of them have failed to pass one, or the other, or all three of the following criteria: (1) Is it easy to do? (2) Is it delicate? (3) Has it a high percentage of accuracy? Each of the tests experimented with, the alimentary glycosuria, epinephrine, acetonuria, sedimentation, and phloridzin tests, the Abderhalden reaction with its various modifications, and the new Ascheim-Zondek reaction[1], has objectionable features which invalidate it for ordinary use and which have prevented its general adoption by the profession.

While in Vienna last year, I met with a test for early pregnancy which seems to withstand all three of the above-mentioned criteria and which therefore gives hope of being suitable for adoption in both hospital and private practice. This is the so-called ninhydrin flocculation test. Two reagents are used in carrying it out. The first reagent contains the following ingredients:

Potass. Bicarb.	2.5 grams
Aq. Calcis	55.0 cc.
Aq. Dest.	954.0 cc.

Through this solution carbon dioxide gas is blown from a tank for five minutes. The bottle is then stoppered and shaken for three minutes. The reagent itself can be used for several weeks, but *on each occasion that it is used, the carbon dioxide gas must be blown through it.*

The second reagent is a one per cent. solution of ninhydrin (triketohydrindene hydrate). As this solution keeps for only one or two days, it should be made up fresh each time.

The technique of the test is as follows:

(1) To 10 cc. of the first reagent, add 0.2 cc. of the ninhydrin solution. Then add 1.75 cc. to 2 cc. of the patient's serum.

(2) Place the test-tube containing the above mixture in boiling water for three minutes.

(3) a) In very early pregnancy, fine blue flocculi are scattered through the solution, which has turned purple.

b) In pregnancy over six weeks, there is a fine emulsion scattered through the purple solution.

c) In non-pregnant women, a heavy cloud of large, coarse flocculi settles to the bottom of the purple solution.

Although the test has been in use for over two years, the physiological basis for its success has not been definitely determined. It has been suggested that it depends upon the different amounts of serum-albumin and serum-globulin in the bloods of pregnant and non-pregnant women and upon changes in their lability as regards precipitation. But definite proof of this fact as the basis of the test has not been established[2].

This test was first developed by W. Vogel, who announced in his first report[3] that it was positive in 97.8% of 281 cases of pregnancy and negative in 97.7% of 212 non-pregnant women. In the first three months of pregnancy, the test proved reliable in only 76% of the cases. The test was checked by various workers, who were not as enthusiastic in its praise as Vogel had been[4]. On the other hand, very good results were reported to me orally by Dr. Schiller, the pathologist at the Kermauner Clinic in Vienna. He believed some of the earlier failures to have been due to insufficient saturation of the first reagent with carbon dioxide gas. When this error had been corrected, the results of the test improved. The test first becomes positive at the third week of pregnancy and becomes negative two weeks postpartum.

I now wish to report my own experience with this test in 586 cases, 234 pregnant and 352 non-pregnant patients. The exact condition of the patient was unknown to me before the test in almost all of the cases. The findings were checked, after they had been written down by the laboratory technician.* The results are indicated in the table below, which gives a detailed analysis of all the cases.

	No. of Cases	Positive No.	Positive %	Negative No.	Negative %
Cases of pregnancy					
1) 1½-3 months	32	32	100	0	0
2) 3-9 months	200	200	100	0	0
Total	232	232	100	0	0
Non-pregnant cases					
1) Males	120	5	4.1	115	95.9
2) Pelvic conditions (Pregnancy excluded)					
a) Fibroids	13	3	23	10	77
b) Ovarian cysts	10	0	0	10	100
c) Carcinoma	1	0	0	1	100
d) Salpingitis	12	2	16.7	10	83.3
Total	36	5	14	31	86
3) Functional amenorrhea (Over 6 weeks)	16	0	0	16	100
4) Miscellaneous	180	7	3.9	173	96.1
Total	352	17	4.8	335	95.2

From this table it is evident that a negative report in any patient who has the possibility of

*Miss Anne Miller, whom I here wish to thank for her assistance in this work.

being more than six weeks pregnant practically excludes pregnancy, for there have been no failures in diagnosing pregnancies of a more advanced stage than this. My experience with patients under six weeks pregnant has been limited to two cases, one of which was diagnosed correctly. The second patient also gave a positive reaction when the test was repeated two weeks later. At the present, therefore, the degree of effectiveness of the test in these very early pregnancies cannot be exactly stated by me.

In the non-pregnant patients, there is an error of about five per cent., including five male patients. The type of case in which these errors occurred is as follows:

Females	
1) Fibroid	3
2) Salpingitis	2
3) Appendicitis	4
4) Cardiac (decompensated)	1
5) Epilepsy	1
6) Hypo-ovarianism	1
Total	12
Males	
1) Syphilis (Wass. neg., primary lesion over 2 yrs. before)	3
2) Ruptured appendix	1
3) Ruptured gastric ulcer	1
Total	5

The gross error is not great, but from the analysis of these cases, it is seen that it occurred for the most part in patients with pelvic or with closely allied (appendix) trouble. The number of this type of case is small, but if this percentage should continue in a large series of cases, it would, of course, detract from the value of a positive report by this test.

An effort was made to determine possible sources of error in the technique of the test and the following were discovered:

1) The introduction of red blood cells with the serum used in the test or the use of hemolyzed blood may give false negatives. (This was tested on known positive cases.)
2) The use of too much ninhydrin or of too little serum may give false positives.*
3) The use of tap water instead of distilled water in preparing the first reagent may give false positives.
4) The use of serum over forty-eight hours old, even if kept on ice, may give false positives.†
5) Overboiling, up to ten minutes, had no effect upon the correctness of the test.

SUMMARY

1) The ninhydrin flocculation test can be highly recommended because of its simplicity and high degree of accuracy.
2) A negative report, especially after a possibility of six weeks pregnancy, practically excludes pregnancy.
3) Further study is necessary to determine its degree of accuracy in very early pregnancy and in cases with pelvic complications.
4) Sources of error are recorded.

REFERENCES

1 For discussion and results of various pregnancy tests, see Wien. lin. Wchnschr., 40: 1113 (1927). Zeitschr. f. Geburtsh. u. Gynäk., 93: 75 (1928).
2 For a discussion, with references, of the basis of the test, see Zentralbl. f. Gynäk., 52: 1130 (1928).
3 Ibid., 50: 1554 (1926).
4 Ibid., 50: 2555 and 2949; 51: 852.

*Proportionate reduction of the reagents and the serum tended to give false positives.

†Errors 2, 3, 4 were discovered on known negatives.

Case Records of the Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY R. C. CABOT, M.D.

F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 15251

BREATHLESSNESS

MEDICAL DEPARTMENT

First admission. An English pipe organ tuner forty-four years old entered February 19 complaining of breathlessness.

Six months before admission he went on one of the periodic alcoholic debauches in which he had always indulged. After three days his feet swelled. When he stopped drinking the swelling disappeared, returning later, increasing and ascending until it involved the penis. Since the onset he had had sharp pain over the splenic area when he was tired. Five months before admission he had a "cold" lasting four to six weeks, he thought without fever. He coughed and raised a little sputum, and had pain in the back and breathlessness, worse on exertion. For three months he had had oliguria. Three months ago he began to feel a pressure in his abdomen as though he had eaten a heavy meal, with belching and nausea. His abdomen gradually increased in size so that he had to loosen his clothing more and more. He tried eating only one meal a day without relief. Five weeks before admission he had an X-ray examination and was advised to enter a hospital. A week later by advice of a physician he followed a régime of restricted fluids, powders and unlimited diet, but after a week stopped it because he was alarmed by his oliguria. Three weeks before admission he followed advice for rest and Epsom salts with some relief of the edema and slow improvement in his feeling. Recently he had slept on his back and had had dull aching pains under his scapulae, relieved by sitting in a chair. Since the onset he had gradually lost strength and gained weight, 17 pounds up to a month ago, though his arms seemed thinner. He had had three moderate nosebleeds. His bowels had become slightly constipated.

His father died of cancer of the throat. The patient's wife was psychotic for a year ending six months ago. The patient took care of her himself. His business and his income of course suffered. He had scarlet fever at twelve, typhoid fever at twenty-one. He had always been a heavy periodic drinker. At twenty-four he had lesions on his soles and a severe sore throat, and was treated with mercury by mouth. Two years later his wife had him committed to the Psychopathic Hospital for excessive drinking. He had a positive Wassermann, and was treated with intravenous injections for a year and a half. At thirty-four he had gonorrhea, with treatment. At forty he had severe coarse tremor and was "jumpy" from alcohol. Now he was more quiet.

Clinical examination showed a slightly wasted man with an enormous abdomen, lying flat in no discomfort and with no dyspnea. Two submaxillary glands were felt, and left axillary glands the size of a pea. Teeth carious. Marked pyorrhea. Smooth, somewhat pedunculated enlargement of the left tonsil. Lungs clear. Apex impulse of the heart in the fourth space. Left border of dullness 9½ centimeters from midsternum, one centimeter outside the midclavicular line, right border two centimeters, supracardiac dullness 6. Sounds of poor quality. A systolic murmur at the base. Pulses normal. Radials and brachials palpable and tortuous. Blood pressure 105/70 to 112/75. Abdomen distended; fluid wave, shifting dullness. A small umbilical hernia. Edema of legs, sacrum and genitals. Pupils and reflexes normal.

Urine 120 to 34 ounces, specific gravity 1.010 to 1.030, 3 to occasional leukocytes at all of four examinations; urine otherwise negative until after medication (see below). Blood: leukocytes normal, hemoglobin 75 to 85 per cent, reds 3,790,000 to 4,760,000, slight poikilocytosis, smear otherwise normal. Two Hintons and two Wassermanns weakly positive. Non-protein nitrogen 29. Icteric index 5. Two Rosenthal liver function tests: 15 to 20 per cent retention. Van den Bergh test biphasic, 1.28 milligrams per 10 c.c. Abdominal tap February 20; 4½ liters of clear yellow fluid, specific gravity 1.005, 150 red cells, 50 leukocytes, mostly monocytes. Stools not remarkable.

Temperature 96° to 99°, with one rise to 100° March 2. Pulse 65 to 97. Respirations normal.

X-ray examination with a barium meal and a barium enema showed no definite evidence of organic disease. Palpation of the stomach was impossible because of abdominal distention. There was some spasm in the region of the sigmoid.

A syphilis consultant thought the left lobe of the liver seemed enlarged. After the abdominal tap the liver edge was felt, smooth, not tender, 8 to 9 centimeters below the costal margin; the left lobe was easily felt and was larger than the right. Salyrgan, mercury succinamide and ammonium chloride were given, but were stopped because of the appearance of albumin and casts in the urine. A lumbar puncture was negative. The dorsalis pedis arteries were obstructed; there was poor circulation in the feet. March 6 the patient was discharged.

History of interval: The patient did fairly

well for the next month. He came to the Out-Patient Department for four treatments of mercury succinamide, and had several abdominal taps. March 31, after taking morphine prescribed by his physician, he became somewhat irrational. During the next two days he sank deeper and deeper into coma. He vomited coffee grounds material several times.

Second admission, April 2.

Examination showed a comatose, moribund man with deep and slowed respirations and cyanotic cheeks and lips. His eyes were turned to the left; apparently he could not move them to the right. Systolic blood pressure 80. Pulse somewhat rapid but regular. Coarse râles posteriorly. Abdomen moderately distended with fluid. Veins over the lower chest and abdomen dilated and plainly visible. No edema of the legs or genitalia. Leg reflexes very hyperactive, equal. Clonus well sustained on the left, poorly sustained on the right. Questionable Oppenheim and Babinski, both legs. Arm reflexes hyperactive but equal.

Temperature 98°. Pulse 90 to 140. Respirations normal.

The patient died quietly the evening of admission.

Discussion

BY RICHARD C. CABOT, M.D.

NOTE ON THE HISTORY

I think the fact that he had oliguria makes it improbable that he was given an unlimited diet.

NOTES ON THE PHYSICAL EXAMINATION

I take it the Rosenthal liver function test was for half an hour, the ordinary period.

"Biphasic" of course means neither one thing nor the other if you are looking for a direct or indirect (obstructive or hemolytic) lesion. 1.28 milligrams of bilirubin per 100 c.c. would ordinarily be taken as normal. The Rosenthal test points one way and the van den Bergh the other.

I assume that salyrgan was not given primarily for possible syphilis, but as a diuretic. It is a rather popular mercurial diuretic at the present time.

DIFFERENTIAL DIAGNOSIS

I think we should try to anticipate what diagnosis was made in this hospital at the time of the first discharge. I will start from the most obvious physical sign, which is ascites. Ascites has five important causes, approximately in the following order: (1) heart disease, (2) kidney disease, (3) cirrhosis of the liver or other less common portal obstruction, (4) malignant disease obstructing the venous circulation in the abdomen, (5) tuberculous peritonitis. Taking those, we have some signs pointing toward the heart, but not enough I should say to make us say that this is cardiac disease with edema of the legs and ascites of cardiac origin. We have nothing in particular it seems to me to indicate any disease of the kidneys. We have nothing in particular that points to malignant disease; that is we have no palpable tumors even when the abdomen has been emptied by tapping. We have no veins large enough to be important. We have no jaundice. We have no evidence of any trouble in the gastro-intestinal tract. That is sufficient, I think. As to tuberculosis, we have no fever. We have not the slight rigidity of the abdomen which is usually present. There is no history or other sign of tuberculosis.

So in a heavy drinker with ascites and a big liver we should naturally say this is cirrhosis; but we have to consider of course the possibility that it is syphilitic cirrhosis, since there is a good deal in the history to suggest that he had syphilis previously. Enlargement of the left lobe I do not think is of much importance in differentiating plain cirrhosis and syphilitic cirrhosis. Syphilitic disease of the liver does not ordinarily produce ascites, however. If syphilis produces ascites, we generally call it syphilitic cirrhosis. No marked improvement followed mercurials. With syphilitic liver if it is not cirrhosis one ordinarily gets marked improvement with the administration of mercurials. The chances seem to me therefore that it is a non-syphilitic cirrhosis; but nobody can possibly prove this that I can see.

Nothing else in the body seems to me significant. In the interval between admissions the abdomen continued to fill up and the cirrhosis was going on.

The natural supposition seems to me to be that he died with the hepatic toxemia with which most cases of cirrhosis end. His irrationality, his gradually increasing coma are characteristic. On the other hand we do not ordinarily get Babinski in this particular coma, but there is no uniformity about results. If we do not believe, as I do, that this is simply the natural end of a case of cirrhosis, we shall probably have to assume some brain lesion, cerebral hemorrhage or some other vascular lesion in the brain. Of that we have very little evidence, no evidence of increased intracranial pressure and no focal symptoms. I see nothing that cannot be accounted for by poor liver function, which gives a picture not distinguishable from uremia. There is no clinical distinction between uremia and hepatic toxemia.

I have nothing more to say as to differential diagnosis. This should be ordinary alcoholic cirrhosis, or syphilitic cirrhosis, which I believe is less probable for the reasons given. I do not see why there should be any important lesion in any other organ. Of course we suspect enlargement of the spleen and evidences of collateral circulation in the abdominal veins and about the root of the esophagus very possibly.

A STUDENT: Would you consider the coffee ground vomitus the result of ruptured esophageal varices?

DR. CABOT: I do not know what to say. In fact in the vast majority of cases in which we can prove real rupture it gives rise not to coffee ground vomiting but to profuse hemorrhage.

A STUDENT: Do you attribute any significance to the eye paralyses?

DR. CABOT: No; I do not see what significance to attribute to them. I think you will find as you come to the examination of comatose cases in hospitals that you will get very little out of examination of the eyes. You will find them doing all sorts of queer things. You will generally find nothing to account for these things. Pupillary changes, ocular paralysis, nystagmus, conjugate deviations I think very seldom help us.

A STUDENT: Does a systolic murmur at the base mean a heart lesion?

DR. CABOT: Not in my opinion; that is you can get it with nothing but moderate secondary edema or moderate aortic arteriosclerosis, which I suspect from his history, without any lesion in the heart valves.

A STUDENT: Was he given potassium iodide after his first discharge?

MISS PAINTER: It is not mentioned. He was advised to go to the South Medical for treatment.

DR. CABOT: I do not know. I suspect that he got quite a good deal of treatment for syphilitic liver. If we have real gumma there, gumma does respond to treatment, but not if the liver gets to the state of fibrous tissue. Then it does not respond to anything. I think it is good therapeutics to realize that if diagnostic study makes us believe that the kidney, liver, brain or any other organ of the body is the seat of fibrous tissue change, we are not going to affect that by any treatment whatsoever. I have often seen a diagnosis which supported that and treatment going on just the same as if they never suspected fibrous tissue.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Cirrhosis of the liver.
Syphilis.
Cerebral hemorrhage.

DR. RICHARD C. CABOT'S DIAGNOSIS

Cirrhosis of the liver, probably alcoholic.
Ascites.

ANATOMIC DIAGNOSES

1. *Primary disease.*
   Atrophic cirrhosis of the liver.
2. *Secondary or terminal lesions.*
   Esophageal varices with hemorrhage.
   Ascites.
   Emphysema.

DR. TRACY B. MALLORY: This man showed a cirrhosis of the liver of atrophic, presumably alcoholic type. The weight of the liver was 375 grams. The shrinking was uniform on both sides. If anything was felt during the physical examination in the left upper quadrant I am sure it was not the left lobe of the liver but the spleen, which weighed 230 grams, about twice the normal size.

He had during the last few minutes of life an extremely severe gastric hemorrhage, the entire stomach and most of the intestinal tract being filled with bright red blood. That was the immediate cause of death.

The other organs were essentially negative. The heart was not hypertrophied. There was a slight degree of arteriosclerosis in the coronary arteries, but nothing approaching occlusion.

A STUDENT: Was there anything in the brain?

DR. MALLORY: That was not examined.

A STUDENT: Would you call this alcoholic cirrhosis or portal cirrhosis?

DR. MALLORY: I call it alcoholic cirrhosis. I do not believe there is any significance in the term portal cirrhosis. Under it are included such different entities as alcoholic and toxic cirrhosis and hemochromatosis.

A STUDENT: Is this different from luetic cirrhosis?

DR. MALLORY: Entirely. I have no hesitation in saying it was not syphilitic cirrhosis. Syphilis of the liver is grossly very characteristic. It results from healed gummata which give deep cleft-like scars which extend into the liver substance three to four centimeters and tend to divide the liver into fifteen or twenty different lobes instead of the normal five. We do get diffuse cirrhosis of the liver from syphilis occasionally, but so far as I know in congenital cases only. It is very rare.

A STUDENT: Was the liver surface very smooth?

DR. MALLORY: No; it was finely nodular or coarsely granular, somewhere in between the two. The nodules were less uniform and a little larger than in the average case of alcoholic cirrhosis.

A STUDENT: Would you say stomach bleeding was the cause of death?

DR. MALLORY: Yes.

DR. CABOT: It is worth emphasizing that a hobnail liver is practically never felt during life; you see the hobnails post mortem. We do not get those nodules through the abdominal walls. If we get them they are generally cancer.

CASE 15252

SIX WEEKS' COUGH AND FEVER WITH GOOD NUTRITION

MEDICAL DEPARTMENT

A married Italian woman twenty-seven years old entered through the Emergency Ward Feb-

ruary 1. A brief and perhaps inaccurate history was taken through an interpreter.

Since Christmas she had had slight unproductive cough. Three weeks before admission she had sore throat. The cough then became more severe and productive of occasional small amounts of sputum. She also had pain in the left upper chest behind associated with cough and breathing. For three weeks she had been feverish every night and had had very slight dyspnea, cold feet, loss of appetite and constipation. She had been unable to sleep because of the cough and pain. Since the acute onset she had been in bed, and had not nursed her seventeen months old baby, as she did up to that time. The cough had grown more severe, the sputum larger in amount. The sore throat had cleared up. For two weeks she had had occasional nausea and vomiting. On a restricted diet she vomited less often and only after paroxysms of coughing. For the past few days she had not vomited. For a week she had raised small amounts of blood-streaked sputum.

There is no history of familial disease or of exposure to infections.

She had always had good health. Her past history is negative.

Clinical examination showed a well nourished woman with slight dyspnea and an expiratory grunt. A few carious teeth. Heart not enlarged. No murmurs. There was massive consolidation of the left lower lobe and part of the left upper lobe, with crepitant râles above the consolidation at the apex and consonating râles throughout the consolidation. Abdomen, pupils and reflexes normal.

Urine: 20 to 103 ounces, specific gravity 1.008 to 1.016 at five examinations, the slightest possible trace to a very slight trace of albumin at all, 2 to 4 red cells at three, no leukocytes. Renal function 30 per cent. Non-protein nitrogen 25. Blood normal except for increased platelets. Hinton negative. One blood culture showed no growth, another showed bacillus subtilis. Sputum bloody at all of three examinations, seropurulent, mucopurulent or mucoid at all.

Temperature 99.6° to 104.5°, with wide swinging. Pulse 96 to 142. Respirations 21 to 48.

X-ray examination showed the left lung field dull except for a small area at the apex. The dullness was of a mottled character, increasing in density toward the base, where it obliterated the outline of the diaphragm and the borders of the heart. The right lung field was clear. The heart shadow was not visible to the right of the spine. It was apparently displaced toward the lesion. It was thought this might be due to some curvature of the spine.

The patient's condition grew steadily worse. February 12 a lung consultant found egophony and increased voice and whisper in addition to the signs already found. The patient grieved and wept constantly, asking to go home. While arrangements were being made for her to go she became much worse. February 25 there was amphoric breathing at the left base, bronchial breathing throughout the whole left side and consonating râles at the right base. That day she died.

Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

As far as the history of the present illness goes she has tuberculosis of the lungs. Certainly that diagnosis must have been the chief one in the minds of those who made the examination.

It is surprising that she was well nourished. This does not sound like tuberculosis.

NOTES ON THE PHYSICAL EXAMINATION

It looks like pneumonia, from the examination of the lungs.

The urine and renal function show normal kidneys.

The bacillus subtilis I take it is nothing.

We may just as well leave out the sputum.

Will you take up the X-rays, Dr. Holmes?

Dr. Holmes: This is the plate taken of the patient's chest in the ward with a portable machine and this means a long exposure. The picture is considerably blurred.

At this point is the bright spot spoken of in the record. We suspected at least that it was a cavity. Cavities are difficult things to be sure of, and unless you have an extra good plate and can see no lung markings, it might be simply a thickening of the pleura. The lower part of the chest is very dull of course, rather more dull than you would expect to find with consolidation alone. It is a little more likely than not that there is some fluid there. I rather think the heart is displaced toward the affected side. That would be a very important observation, because ordinary consolidation does not cause this displacement. It is likely to occur where there is real destruction of the lung with cavity formation or fibrosis.

The trachea can be seen at this point, a little displaced toward the affected side. In the interpretation of these findings we have to consider ordinary consolidation or an extensive destruction process with cavity formation and fluid.

Dr. Cabot: Would you have to consider massive collapse?

Dr. Holmes: No. It would not explain the mottled character.

Dr. Cabot: What would you say of the right apex?

Dr. Holmes: Normal. The plate is very much blurred and a good deal of the apex is hidden.

DR. CABOT: If it were an extensive tuberculosis on the left you would be surprised to find the right apex normal?

DR. HOLMES: It would be unusual, yes, but we do find it with such frequency that I do not consider it surprising. I cannot conclude that it was tuberculosis from the X-ray alone.

DR. CABOT: If it is tuberculosis, the right apex will I think be involved.

DIFFERENTIAL DIAGNOSIS

Notice that she was in this hospital nearly four weeks. She had been sick three weeks before she came here. That rules out pneumonia, though not its sequelae.

Could the case be explained by a post-pneumonic empyema? That of course would account for the swinging of the temperature fully as well as a tuberculous process.

How about the sputum? I suspect that something has been held back with a view of giving us a run for our money. It would hardly be possible that they did not get some sputum or that they did not examine it.

She would be most unlikely to die of an empyema in this hospital with such symptoms as are given here and with no attempt to operate upon it. Empyema ordinarily runs a much longer course than this. You will remember that the present king of England had a very long illness. I suppose it was post-pneumonic empyema.

On the whole I think we ought to believe that when the house officers examined the sputum they found tubercle bacilli. Now that I have committed myself, may we have an answer as to that?

MISS PAINTER: They did.

DR. CABOT: What then shall we look for aside from the obvious finding of tuberculosis of the left lung? I shall look for a process at the right apex. Dr. Holmes will not. What else? I should not suppose the case lasted long enough to start amyloid. But I am unable to state how long it takes. How about that, Dr. Mallory?

DR. TRACY B. MALLORY: I cannot answer.

DR. CABOT: I have no good reason to suppose amyloid (liver, spleen, kidneys) from anything given here. I suppose there is tuberculosis in the glands outside the lungs. I do not know of any evidence of tuberculosis anywhere else in the body.

A STUDENT: Should not the left apex be more involved? Is it common to have such an extensive process in the rest of the lung and not there?

DR. CABOT: There is presumably a tremendous amount of thickening of the pleura throughout. This might cover up the apex process. It was either cavities or extensive pleural thickening at the base that accounted for the pulling over of the heart.

A STUDENT: Is this the so-called galloping consumption?

DR. CABOT: Yes.

A STUDENT: With fluid would you expect the heart to be pushed over so much?

DR. CABOT: No.

INTERPRETATION OF X-RAY

The appearance is that of consolidation.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Pulmonary tuberculosis.
Pneumonia.

DR. RICHARD C. CABOT'S DIAGNOSIS

Tuberculosis of the lungs.

ANATOMIC DIAGNOSES

Chronic pulmonary tuberculosis with cavitation.
Acute caseous pneumonia.

DR. MALLORY: An extremely extensive tuberculosis was present in the left lung with a large cavity four centimeters in diameter at the apex of the upper lobe and a group of small cavities at the apex of the lower lobe. Nearly two-thirds of the lower lobe was almost completely solid with closely packed conglomerate tubules and areas of caseous pneumonia. The right lung showed fairly extensive fresh tuberculosis which was scattered rather diffusely through it, but did not involve the apex.

DR. CABOT: The old process was merely in the left lung, then?

DR. MALLORY: Yes.

The other organs were entirely negative. There was no evidence of generalized tuberculosis.

A STUDENT: How about the pleura?

DR. MALLORY: It was completely obliterated by fibrous adhesions.

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THE ANNUAL MEETING OF
The Massachusetts Medical Society

THE one hundred and forty-eighth anniversary meeting of the Massachusetts Medical Society began Monday, June 10, 1929 as set forth in the program with clinics at several of the larger hospitals in Boston. The programs were instructive, well arranged and carried out; the dry clinics being of especial interest. Luncheon was served to visitors in several of the hospitals.

Monday afternoon and throughout Tuesday, section meetings were held at the Copley Plaza at which in addition to local talent, men from other sections of the country presented the views of leaders in the several departments. Monday evening was given over to several different forms of entertainment which kept the audience till nearly midnight.

The selection of Tuesday evening for the annual dinner and the Shattuck lecture by Dr. Robey was an innovation and seemed to be endorsed by a large and representative gathering. Dr. George H. Bigelow, Commissioner of Health, followed Dr. Robey.

Dr. Robey's address which appears in the JOURNAL of this week was a well presented appeal to the profession to engage in the task of educating the public in those matters relating to illness and treatment which are suitable for lay minds. Dr. Bigelow was as usual dynamic in his delivery and explained the relations of health officers and practitioners of the healing art. It was a thoroughly enjoyable evening.

The Council Meeting was very well attended and careful attention was given to the reports of committees and matters of general business. It was a long meeting with an intermission for luncheon when it was found that the session would continue well into the afternoon.

The expectation of the discussion of some matters about which there are differences of opinion led to the Council going into executive session during one period. There proved to be a sane and conservative attitude toward all matters under discussion which demonstrates that the Council is composed of delegates possessing self-control and dignity even in the presence of divergence of opinion.

The election of officers for the ensuing year resulted in the choice of Dr. Robert B. Greenough of Boston as President and Dr. Lester C. Miller of Worcester, Vice President. The orator for the next annual meeting is Dr. Henry A. Christian. The Secretary and the Treasurer were re-elected.

Dr. T. H. McCarthy, President of the Plymouth District Society extended a cordial invitation to the Society to hold its next annual meeting in Plymouth. His address included references to the many interesting historical attractions of the town and region and explained the ample facilities for accommodations of those attending the meetings.

The Council enthusiastically accepted the invitation of the Plymouth District Society.

On Wednesday forenoon the business meeting of the Society was held and the annual oration by Dr. George C. Shattuck was read by Dr. Theodore J. Eastman whose excellent delivery partially compensated for the absence of the orator in person. Dr. Shattuck was necessarily detained in Yucatan where he is engaged in work incident to tropical medicine. The address appeared in the issue of June 13, 1929.

Without in any way minimizing the high quality of the papers and discussion it may be said that the address by Dr. George R. Minot on the Treatment of Anemia before the Society following the annual oration was a brilliant exposition of the discoveries of Minot and Murphy in the treatment of anemia. This address presented facts and deductions hitherto unreported and because this material is soon to

be published, at Dr. Minot's request a report of his address must be withheld.

The Society was honored in being privileged to hear the latest addition to the treatment of anemia.

Taken all in all this meeting was one of the most entertaining and instructive annual gatherings of the Society.

The Committee of Arrangements is entitled to great credit for the efficient attention to details.

Nearly eight hundred fellows registered. That more were not present is the only serious disappointment. Every absentee missed opportunities for adding to his medical lore and delightful social contacts.

The Secretary's report will record the details and will be published in an early issue.

THE PRESIDENT OF THE MASSACHUSETTS MEDICAL SOCIETY

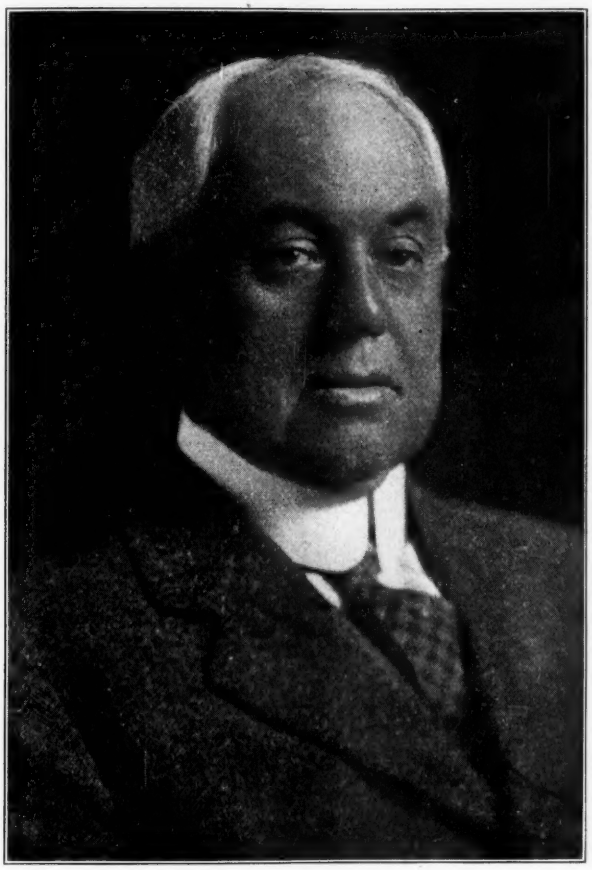
On June 11, 1929, Dr. R. B. Greenough was elected as the President of the Massachusetts Medical Society. He was born in 1871, graduated from the Harvard Medical School in 1896 and has practiced surgery in Boston, carrying an appointment to the Massachusetts General Hospital and is the Director and chief surgeon to the Collis P. Huntington Memorial Hospital. He is a member of the American Surgical Association, the American College of Surgeons, the American Society of Clinical Surgeons, the New England Surgical Society, the American Radium Society and has been prominent in association with the State Department of Health in the Massachusetts State program in dealing with cancer. He is Assistant Professor of Surgery at the Harvard Medical School.

ROBERT BATTEY GREENOUGH, A.B., M.D., F.A.C.S.

Because of his executive ability and wide acquaintance, he will be an inspiring leader in directing and promoting the activities of the Society. His address is 8 Marlborough Street, Boston, Massachusetts.

THE VICE PRESIDENT OF THE MASSACHUSETTS MEDICAL SOCIETY

On June 11, 1929, Dr. L. C. Miller was elected as the Vice President of the Massachusetts Medical Society. He was born in 1867, graduated from the Harvard Medical School in 1895 and has been engaged in the practice in internal medicine in Worcester. He is a member of



LESTER COLWELL MILLER, A.B., M.D.

the American Medical Association, the New England Pediatric Society, and the Tri State Medical Society. He has been visiting Physician and Chief of Medical Service of the Worcester Memorial Hospital and has served the Worcester District Medical Society as secretary and was the chairman of the Section of Medicine this year. His address is 14 Oxford Street, Worcester, Massachusetts.

PHILADELPHIA WILL INVITE THE AMERICAN MEDICAL ASSOCIATION TO HOLD THE 1930 ANNUAL MEETING IN THAT CITY

THE Philadelphia County Medical Society in conjunction with the Philadelphia Chamber of Commerce has prepared an elaborate invitation to the American Medical Association to hold the 1930 session in Philadelphia. This will be presented to the House of Delegates at the Portland Meeting.

This invitation is supported by the Governor of Pennsylvania, the Mayor of the city, the Heads of the Health Departments of the city and state, the several medical schools and many civic organizations.

The appealing rallying cry is "Philadelphia the Cradle of American Medicine".

The notable medical institutions and the large number of eminent physicians in Philadelphia warrant the belief that a meeting in the City of Brotherly Love will be successful in every respect if the invitation is accepted.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

ROBEY, WILLIAM H. A.B., M.D. Harvard 1895. Clinical Professor of Medicine, Harvard University. Chief of the Second Medical Service, Boston City Hospital. Consulting Physician to the Milton and Norwood Hospitals. President, American Heart Association and the New England Heart Association. His subject is: "The Shattuck Lecture—Public Instruction in Medicine." Page 1271. Address: 202 Commonwealth Avenue, Boston.

LANE, EDWARD A. A.B., M.D. Cornell 1916. State District Health Officer, State Department of Public Health. Address: Room 546, State House, Boston. Associated with him is

BECKLER, EDITH A. S.B. Bacteriologist, State Department of Public Health. Assistant Professor of Public Health, Simmons College. Address: Room 527, State House, Boston. Their subject is: "Carriers of Streptococcus Hemolyticus in Relation to Control of Scarlet Fever in Schools." Page 1283.

HOWES, EDWARD L. B.S., M.D. Yale 1928. House Officer, New Haven Hospital. Address: New Haven Hospital, New Haven, Conn. Associated with him is:

HARVEY, SAMUEL C. Ph.B., M.D. Yale University, 1911. F. A. C. S. Professor of Surgery, Yale University. Surgeon-in-Chief, New Haven Hospital. Address: New Haven Hospital, New Haven, Conn. Their subject is: "The Strength of the Healing Wound in Relation to the Holding Strength of the Catgut Suture." Page 1285.

O'HARE, JAMES P. B.A., M.D. Harvard, 1911. Senior Associate in Medicine, Peter Bent Brigham Hospital. Instructor in Medicine, Harvard Medical School. Address: 520 Commonwealth Avenue, Boston. Associated with him is:

HOYT, LYMAN H. B.S., M.D. State University of Iowa College of Medicine, 1925. Assistant in Medicine, Harvard Medical School. Junior Associate in Medicine, Peter Bent Brigham Hospital. Address: 721 Huntington Avenue, Boston. Their subject is: "Surgery in Nephritic and Hypertensive Patients." Page 1292.

APPEL, BERNARD H. M.D. Tufts Medical School, 1922. Assistant in Pediatrics, Beth Israel Hospital. Graduate Assistant in Pediatrics, Boston City Hospital. Pediatrician to Baby Hygiene Clinics, Boston Board of Health. Teaching Assistant in Pediatrics, Tufts Medical School. Address: 483 Beacon Street, Boston. Associated with him is:

KASANIN, JACOB. B.S., M.S., M.D. University of Michigan, 1921. Research Associate, Special Research on Social Causes of Mental Diseases, Boston Psychopathic Hospital. Visiting Psychiatrist, Federated Jewish Charities of Boston. Assistant Neurologist, Beth Israel Hospital. Address: 483 Beacon Street, Boston. Their subject is: "Iniencephaly." Page 1295.

DAVIS, MAX. A.B., D.N.B., M.D. Harvard 1925. Second Assistant Obstetrician, Massachusetts Homeopathic Hospital. Gynecologist to Outpatient Department, Massachusetts Homeopathic Hospital. Assistant in Obstetrics, Boston University School of Medicine. His subject is: "The Ninhydrin Flocculation Test for Pregnancy." Page 1297. Address: 311 Commonwealth Avenue, Boston.

MISCELLANY

PARENTS AND THE ERADICATION OF DIPHTHERIA

Children need not be infected and practically none need die from diphtheria. This conclusion is well established by modern medical practice. Yet this disease still takes a yearly toll of ten thousand children in the United States. This will cease when all parents realize the value of immunizing their children and provide this simple protection for them.

The co-öperation of parents is absolutely essential for the control of diphtheria. It is on them that the responsibility for the immunization of their children rests. A survey recently made by the Metropolitan Life Insurance Company demonstrates this conclusion. A total of 178 replies was received from physicians throughout the United States and Canada who, during the early part of this year, treated fatal cases of diphtheria among insured children and the facts disclosed are presented here.

In not a single case was the accepted procedure for the immunization of the children followed. There were, to be sure, a few cases in which three injections of the toxin-antitoxin or toxoid were made, but in not one of them had the Schick test for confirming the immunity been subsequently given. Clearly this group of children did not receive the benefits of the full preventive treatment.

It is true that in the great majority of the cases, 93 per cent., antitoxin was used in the treatment and usually in sufficient quantity. In only twelve of these fatal cases was it not used at all. But in most cases where antitoxin was given, the injections were made far too late in the course of the disease to be of benefit. In the great majority of cases, the doctor was not called in until the fourth day or later. As time is inevitably lost in making a diagnosis, the administration of antitoxin was made obviously too late in these cases to be of use. In a few cases the number of units of antitoxin was sufficient or given in two or more doses. The evidence is very clear that better success would have been obtained if the physicians had administered antitoxin in these cases in one large dose rather than in several smaller doses. In this respect, it would be well to urge the adoption of larger unit-packages on municipal health authorities. The delay in calling in medical aid, however, is the chief cause of the fatality, and this is chargeable to parental ignorance or neglect.

Until voluntary immunization becomes a common

practice, some means must be found to educate parents in the signs of diphtheria and in the necessity for early medical care in this disease. But the main hope of diphtheria eradication is in immunizing children, and if it cannot be made compulsory, efforts to preach its necessity to parents must be strenuous and unrelenting. In this program, the medical profession, the schools, health agencies and the life insurance companies must continue their contribution.—*Statistical Bulletin, Metropolitan Life Insurance Company.*

BOSTON DOCTORS FACE ARREST IN RHODE ISLAND

Under this caption the daily papers announce that a bitter fight is being waged in Rhode Island by physicians and medical societies against the Providence Branch of the National Health Bureau.

The charge is that the Massachusetts physicians connected with this Bureau have been practicing illegally in Rhode Island because of not having secured registration in that State and the article sets forth that warrants have been issued against Dr. William R. P. Emerson, Dr. Harold Bowditch and Dr. Josiah E. Quincy. Dr. John A. Ragone of Buffalo is also named in the statements. The warrants have been sworn out by Dr. B. U. Richards, Secretary of the Rhode Island State Board of Health.

Dr. Emerson is quoted as being surprised. He claims to have been in conference with Dr. Richards and supposed that the Bureau was being operated in conformity with Rhode Island Laws.

AMERICANS IN PARIS AID FOCH HOSPITAL

Many Americans who venerate the memory of Marshal Foch are now interested in the memorial hospital soon to be erected in Paris. It will bear the great warrior's name.

Those who were close to the Generalissimo of the Allied Forces feel that they are carrying out his wishes in making this memorial a practical agency in the relief of suffering.

The undertaking is now well advanced. A tract of land measuring 10,000 square meters (about 2.5 acres) has been acquired above the Seine River, between the Pont de Sevres and the Pont de St. Cloud, at a cost of 4,000,000 francs (about $160,000).

The hospital itself, while it will be principally under French direction, will be served by both French and American doctors and will embody the most modern ideas and appliances.

The head surgeon is to be an American. The architect, M. Fouque, has just returned from a year in America, where he studied hospital outfitting and practice.

TO SERVE INTELLECTUALS

The Foch hospital is intended primarily to serve those in the intellectual callings, such as writers, teachers and scientists, putting the best facilities within the reach of those who have worked in Paris and who are not highly paid, this irrespective of nationality.

It is proposed to have a school and a home for nurses on the grounds, thus inaugurating a work in which Miss Anne Morgan, daughter of the late Pierpont Morgan, has long been interested.

The Foch hospital will have 300 rooms at the moderate price of from thirty to fifty francs ($1.20 to $2) daily, this inclusive of charges for services. A sum of 2,000,000 francs (about $80,000) besides the grounds has already been subscribed and other substantial contributions are promised.

Paul Claudel, the French Ambassador at Washington, is actively interested in raising funds in America. A committee of Americans including Walter Cotchett, Washington Lopp and Bernard Flurscheim called a few days ago on Mme. Foch, who approves all the phases of the work, and she suggested that the hospital be named Foch.—*New York Times.*

AN INVESTIGATION OF CONDITIONS AT THE UNITED STATES VETERANS HOSPITAL IN RUTLAND, MASS.

Because of complaints of the quality of food and other matters, arrangements were made to have the hospital investigated.

On June 12, 1929 a committee including Commander Hankin, post master department Commander John Wallace and Dr. Julian De Lucas visited the hospital.

Reporters for newspapers accompanied the committee in order to give publicity to the investigation.

Reports of this investigation will be awaited with interest.

A RESOURCE IN CERTAIN INFANTILE DISORDERS

The nutrition of infants is one of the serious problems of medicine. Sometimes human milk is not available for an infant in the natural way. Cow's milk is not always the best food, however carefully produced and modified. Nature's method of wholesome humar milk is the best, other things being equal, but sometimes the mother may be ill or unable to secrete milk or may have died. The baby may not assimilate other foods but may thrive on human milk. Human milk can be obtained on application to the Wet Nurse Directory at 270 Commonwealth Avenue, Boston. The source of supply is from carefully selected and approved donors. Like many necessities the cost of human milk is high as compared with cow's milk and the cost must be met by the customer when possible although the milk is not denied when the parents are unable to pay.

The Directory is in charge of Miss C. A. Macpherson.

The Wet Nurse Directory is worthy and should be supported liberally. The list of consulting physicians assures the standing of this organization and the reliability of the product.

SANITARY ENGINEERING COURSES IN THE UNITED STATES

A compilation of data concerning sanitary engineering courses in the colleges of the United States has recently been prepared by the United States Public Health Service. From this summary it appears that there are 16 colleges in the United States at present operating either regular or optional courses in sanitary engineering.

There seems to be considerable difference of opinion among the universities as to the fundamental conception of a sanitary engineering course. The sanitary engineering courses are in reality civil en-

gineering courses with certain appended subjects, such as water supplies, sewage disposal, the bacteriology and chemistry of water and sewage, and a little public health instruction.

Emphasis in both sanitary engineering and public health subjects reflects in practically all the institutions the personality of the professor of sanitary engineering.

The number of sanitary engineering graduates annually is increasing. There is a great variation in the degrees granted by the institutions for equivalent work and also in the names of the courses. In four of the 16 institutions the term of the sanitary engineering courses is either five or six years.—*United States Public Health Service.*

CORRESPONDENCE

A COURSE FOR NURSING ATTENDANTS

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

June 12, 1929.

NEW ENGLAND JOURNAL OF MEDICINE:
Boston, Massachusetts.

As you know, we are offering at our Pondville Hospital service to all types and stages of cancer. Visitors to the institution have been astonished at the difficulty of the nursing problem involved and at the excellence with which the problem has been met. In order to continue this, and also in a small way to contribute to the general problem of care for the chronic sick, we are opening September 1st a course for nursing attendants. In this course, practical and theoretical work will be given in bedside nursing for chronic and convalescent, housekeeping and elementary dietetics, and the like.

We can handle eight students the first of September and the first of March. Applications have already been received for September 1st, but there are still a few vacancies. In addition to maintenance we are able to pay the students $30 a month during the last ten months of training, the course to cover a period of one year.

It occurred to us that physicians might well be acquainted with young women of the type needed for this work to whom they might give information as to this opportunity for training. We should be glad to furnish further information and anyone interested may write directly to Miss Veronica M. Beauregard, Superintendent of Nurses, Pondville Hospital, Wrentham, Mass., or to this Department.

Yours truly,
GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

RECENT DEATH

DWYER—DR. JOHN EDWARD DWYER, a Fellow of The Massachusetts Medical Society, died June 10, 1929, at The Holy Ghost Hospital, in Cambridge, after six weeks illness, following a cerebral hemorrhage.

A native of Cambridge, he was 65 years old. The Cambridge Schools and Boston College gave him his premedical education. He was graduated from Bellevue Hospital Medical College in 1887 and settled in Cambridge, joining the Staff of The Holy Ghost Hospital, very soon after and serving it throughout his life.

In 1903 Dr. Dwyer was a member of the Cambridge Board of Aldermen. He married Miss Frances C. McNamee, a sister of former Mayor McNamee of Cambridge. She survives him, as does a son, Dr. John E. Dwyer, of Springfield, a Fellow of the state Society.

Dr. Dwyer served his city also as a member of the Park Commission and of the School Committee.

NEWS ITEMS

ACCIDENT TO DR. FRANCIS P. EMERSON—The profession will sympathize with Dr. Francis P. Emerson, Brookline, who was taken to the Massachusetts General Hospital recently suffering from being struck by a motor car.

A NEW HOSPITAL GROUP—Announcement has been made by Dr. H. M. Pollock, Superintendent of the Massachusetts Homeopathic Hospital of plans for a hospital group to occupy the land on Washington Heights in Brighton.

Work on the first building will be begun early next year. The area of the tract to be devoted to the development of this series of buildings is about thirty acres. Purchase of part of this tract from the Commonwealth was consummated a few weeks ago which is adjoining land purchased from the Munroe estate. There will be frontages on Commonwealth Avenue, Warren Street and Washington Street.

The present hospital was erected in 1873 and has been used as a teaching hospital for Boston University School of Medicine although the corporations are distinct.

It is estimated that it will take at least five years to complete the buildings composing this group.

When completed this will be great addition to Boston as a medical center.

NOTICES

REMOVAL

Dr. William T. O'Halloran has moved his office from 416 Marlboro Street to 475 Commonwealth Avenue, Boston.

ACKNOWLEDGMENT

The JOURNAL has been favored by the receipt of a copy of the BOSTON MEDICAL AND SURGICAL JOURNAL Volume LXXXVIII June 1, 1873, Part LXIV edited by J. Collins Warren, M.D., Thomas Dwight, Jr., M.D and Frank W. Draper, M.D.

REPORT AND NOTICE OF MEETINGS

FOUR WESTERN COUNTIES MEDICAL SOCIETIES

Dr. J. A. Houston of the Northampton State Hospital has invited the Society to meet at the Hospital on June 26, 1929. Dinner will be served at 1 o'clock promptly. After dinner the Annual Business Meeting will be held.

The afternoon will be occupied by an inspection of the institution after which Dr. Houston will tell of the development of the scientific care of the mentally ill during his long experience in this work.

L. O. WHITMAN, *President.*
CHAS. MOLINE, *Secretary.*

THE ANNUAL MEETING OF THE NATIONAL TUBERCULOSIS ASSOCIATION

The twenty-fifth Annual Meeting of the National Tuberculosis Association was held at Atlantic City from May 28 to 30 inclusive. The completion of a quarter-century of work by the National Association was signalized by an appropriate program and functions.

It was at Atlantic City in 1904 that a group of physicians and one layman met and organized the National Tuberculosis Association. Of the one hundred and ninety-seven men who founded the Association in 1904 forty were present at the Twenty-Fifth Anniversary Dinner on May 28. On this occasion, which was called "The Founders' Dinner," Massachusetts was represented by Dr. Edward O. Otis, who was among those who participated in the establishment of the National Association. Dr. Vincent Y. Bowditch of Boston, who was also a Founder from Massachusetts, was unable to be present on account of illness.

The dinner was presided over by Dr. William H. Welch of Johns Hopkins University. Dr. Welch was introduced by Dr. Eugene L. Opie, President of the National Tuberculosis Association, who earlier in the day had received the Edward L. Trudeau Medal, which is awarded annually for the most conspicuous work of the year in the tuberculosis field. Five hundred and seven persons from all parts of the United States and some from Canada joined in paying tribute to the founders as Dr. Welch called the roll. Dr. Welch reviewed the beginnings of the National Association, particularly emphasizing the part which was played in the early years by Dr. Herman M. Biggs, Dr. Livingston Farrand and Dr. S. Adolphus Knopf.

Dr. Jabez H. Elliott, President of the Canadian Tuberculosis Association, who was also one of the founders of the National Association, extended the congratulations of the Dominion of Canada and expressed the appreciation of the Canadian Tuberculosis Association for the many courtesies extended in connection with their program of work and development of the Christmas Seal Sale in the British Provinces to the North.

Dr. Livingston Farrand, first Managing Director of the National Tuberculosis Association and now President of Cornell University, spoke of the lessons which had been learned in the twenty-five years of the Organization's life. He said in part, "Complete recognition of the great organization of the National Tuberculosis Association called forth an appreciation of the fact that the founders were wise enough to include the lay elements. It was that which gave the organization its chief vitality. I do not think that a strictly professional body could have carried it through and I am sure that no lay organization could have done so. Never was there any despondency as to the ultimate outcome".

Dr. Eugene L. Opie of Phipps Institute, Philadelphia, opened the proceedings of the Annual Meeting with the President's address. He emphasized the fact that those engaged in tuberculosis work despite the striking reduction in mortality from this disease in the past twenty years should not allow themselves to be lulled into a sense of false security. Dr. Opie said in part, "Knowledge of the occurrence of tuberculous infection in the community and of the conditions that favor or retard its spread is the basis of all effective efforts to control the disease. In other words, accurate insight into the epidemiology of tuberculosis is essential to every enterprise of this Association. It is my impression that we have in some degree overlooked this relation, and, in many instances, with uncritical complacency, have allowed our procedures to remain almost unchanged. Early recognition of tuberculosis is notoriously defective, but we have not learned how to use new methods that have become available. Open air schools, summer camps and preventoria are established for the care of children whose health is endangered by tuberculous infection, but procedures for the selection of children suitable for them have proven in large part futile. We advocate very urgently official registration of tuberculosis, but measures to use to advantage the defective information that is obtained are conspicuously inadequate.

"On this, the twenty-fifth anniversary, we may regard with great satisfaction the achievements of the past, but, at the same time, in my belief, we should not encourage the optimistic suggestion that tuberculosis is under control. It is an insidious disease as yet imperfectly understood. Efforts to control it are restricted by inadequate knowledge concerning its occurrence and mode of spread. Health is purchasable—if we know what to buy."

Dr. Gerald B. Webb of Colorado Springs, former President of the National Tuberculosis Association, spoke on "Modifications and Developments During the Last Quarter-Century of Our Knowledge of Tuberculosis and What Changes, if Any, Are Thereby Required in the Tuberculosis Program: Clinical Point of View". "In clinical work in tuberculosis", said Dr. Webb, "there have been eight outstanding advances in the last twenty-five years:

1. The development of the x-ray for diagnosis of pulmonary and other forms of tuberculosis and for the exact following of changes which occur during treatment. The stereoscopic x-ray is the only method of detecting early pulmonary tuberculosis. Tuberculous lesions are usually advanced when cough, hemorrhage or pleurisy occur.

2. The increased appreciation of the value of rest, and of prolonged rest as the only specific remedy, and the introduction of improved methods to achieve this principle.

3. The growth of sanatoria, allowing the application of rest, fresh air and skilled attendance, as well as the isolation of children from the tuberculous. The coincident growth of dispensaries, and of institutions for under-nourished children.

4. The modifications in our opinions regarding so-called specifics such as tuberculin, and climate, and their employment only in special instances. The progress of research towards specific immunization.

5. The empirical application of ultra-violet radiation and other forms of actino-therapy in extra-pulmonary tuberculosis.

6. The improvements in differential diagnosis

from such diseases as accessory sinus and bronchial conditions and hyperthyroidism.

7. The virtual disappearance of so-called 'scrofula' and the decrease in the incidence of bone and joint tuberculosis since the increased prevalence of pasteurization of milk.

8. The increased conservatism regarding surgery in extra-pulmonary tuberculosis as a result of which the old term 'surgical tuberculosis' has become a misnomer."

Dr. Webb made the following suggestions for the tuberculosis program in the future:

1. The continued education of physicians to consider the possibility of tuberculosis in all patients and to investigate sputum and all symptoms and signs thoroughly.

2. The advocating of stereoscopic x-rays for all patients and in members of tuberculous families, this should be done annually. Much emphasis must be placed on improved technique and correct interpretation.

3. States should be encouraged to build more sanatoria for adults and children, and more preventoria for children.

4. The importance of prolonged rest should be stressed and physicians and patients should be impressed with the fact that three or more years are necessary for the cure of tuberculosis. This includes tuberculous pleurisy with effusion.

Dr. Walter L. Rathbun of Newton Memorial Tuberculosis Sanatorium at Cassadaga, New York, spoke in the Clinical Section on the "Epidemiological Basis for the Control of Tuberculosis Among Children". Dr. Rathbun described the intensive examination program which has been carried on during the past six years under his leadership in Chautauqua County, New York. He said, "In our high school and junior high school group, fifty per cent. of the cases of pulmonary tuberculosis have signs of latent disease of the childhood type. This type (childhood or juvenile tuberculosis) is found in between three and four per cent. of the total school population, which means that fifty per cent. of our problem is confined to this very small group. Examination of the school children of a community will disclose those with the childhood type of disease. To get the best results in numbers examined, the work must be done in the schools—as a part of the school program.

"Judging from our experience, it is possible to acquire this information without difficulty in any community, providing the local tuberculosis workers have the will to do the work. The school authorities are most co-öperative in movements directed towards safeguarding the health of their charges, and every well-organized anti-tuberculosis program planned for their schools is sure to meet with favor. It is the ideal time to conduct such a campaign, as during school days children are available for examination, as well as instruction along health lines. When school is over and the former pupils are established in industry, they are far less likely to co-öperate than while under the salutary moral influence of the school authorities. After graduation, one is wholly dependent upon the inclination of the individual to submit to routine examinations, while before it was an actual part of the school life."

Dr. Kendall Emerson, Managing Director of the National Tuberculosis Association and formerly President of the Massachusetts Tuberculosis League, spoke on "Principles and Considerations Which Should Govern the Order of Selection of Activities of Tuberculosis Organizations in Fields Other than Tuberculosis Prevention" as follows:

"A distinction should be made between the words 'principles' and 'considerations'; the one refers to moral obligations, the other to matters of expediency. The chief 'principle' involved is that no expansion should be made into any other fields without full understanding and approval of organizations already engaged in those fields of work.

"Under the heading of Considerations, the question must first be asked as to what the National Tuberculosis Association is equipped to do in the public health field outside of tuberculosis work. The question is considered under the headings of

"*Organization*—the nation-wide character with centralized control by means of the Seal Sale contract is explained.

"*Personnel*—The question of the character and types of personnel who do the work of the organization is next considered, showing the capacity which they possess for work in other fields.

"*Methods of Work*—are reviewed and it is found that the work of the tuberculosis association rests upon a scientific basis.

"*Accomplishments*—The accomplishments of the Association are considered briefly. From this review it is concluded that the National Tuberculosis Association has within itself the capacity to expand into other lines of public health work. The question is then asked as to what order this expansion should take. Each of several fields of public health is described, including social disease, heart disease, child hygiene, and cancer. It is shown that methods applicable to tuberculosis work may be applied without conflict in these fields, provided certain reasonable modifications are introduced to cover the necessary change in emphasis. Mental Hygiene is mentioned and admitted to be a more difficult subject to fit into the general picture.

"The conclusion reached is that expansion into any of the above fields would be reasonable and the order of such expansion must be governed by local considerations, rather than by arbitrary regulations."

Dr. Edward R. Baldwin of Trudeau Sanatorium, Saranac Lake, New York, gave a historical review of the pathology of tuberculosis which may be summarized as follows:

(a) A survey of the progress made in the knowledge of the tubercle bacillus, its life history, varieties, virulence and manner of infection.

(b) The natural history of infection and factors in the etiology of disease.

(c) The accomplishments in the field of bacteriological diagnosis, as well as the application of immunology in the diagnosis and prevention of tuberculosis.

(d) The correlation of the modern knowledge of the course of tuberculous infection with the changes in the tissues, latency of tubercle, fibrous healing and absorption of secondary foci.

(e) The wider understanding of allergic phenomena in disease, the'r growing importance in diagnosis and symptomatology of tuberculosis.

(f) The pathological anatomy of tuberculosis as viewed from the standpoint of immunity to re-infection, cavity formation and extra-pulmonary tuberculosis.

Dr. Charles Hendee Smith of New York City read a paper on "Tuberculosis in Infancy," synopsis of which follows:

The diagnosis of tuberculosis in infancy must be considered from three aspects, the presence of infection, the activity of the disease, and the site of the lesion. The first is determined by the tuberculin reaction, which should be a routine on all sick infants. The Mantoux is much more reliable than the Pirquet. Practical considerations in making the test. Activity is determined by general symptoms rather than by local signs in infancy. The site of the lesion involves a study of the pathology. The common forms are generalized tuberculosis, meningitis, pulmonary disease and lymph node involvement. These are merely end results in the orderly progress of the disease from the initial lesion through the lymphatic system to the particular final pathological condition. A brief discussion of the common clinical types and prognosis follows.

Dr. M. McConkey of the New York State Sanatorium for Incipient Tuberculosis at Raybrook read a paper on "The Treatment of Intestinal Tuberculosis with Cod Liver Oil and Tomato Juice". Dr. McConkey said in part, "Our observations indicate that the average hospital diet is deficient in certain accessory food factors as regards the patient with intestinal tuberculosis and that merely supplementing the diet with cod liver oil and tomato juice affords adequate treatment for this complication of the pulmonary disease.

"We have reached this viewpoint after comparing the therapeutic value of three different forms of treatment in 110 patients suffering with intestinal tuberculosis. Some received only palliative treatment, others generalized ultraviolet radiation and the remainder cod liver oil and tomato juice.

"The state of nutrition, the extent of pulmonary disease and the severity of intestinal symptoms were comparable in all groups at the time the patients entered the hospital. They were all treated at Ray Brook for a similar period and received the same hospital care.

"The intestinal symptoms of the patients receiving palliative treatment usually became increasingly severe, whereas the symptoms were often ameliorated or completely relieved following either generalized ultraviolet radiation or cod liver oil and tomato juice.

"Cod liver oil is administered in the following manner: One-half ounce of a standardized product is floated on the surface of 3 ounces of tomato juice. The whole is chilled and served immediately after meals."

At the Annual Meeting Session of the National Tuberculosis Association the following Officers and members of the Executive Committee for the ensuing year were elected: Dr. Linsly R. Williams, President; Dr. Kennon Dunham, Dr. Henry Boswell, Vice-Presidents; Hon. Herbert Hoover, Dr. William H. Welch, Dr. Theobald Smith, Honorary Vice-Presidents; Henry B. Platt, Treasurer; Dr. Charles J. Hatfield, Secretary; and Wadleight B. Drummond, Clerk. The Executive Committee consists of the Officers and Dr. Eugene L. Opie, Dr. David R. Lyman, Dr. Esmond R. Long, Dr. James A. Price, Dr. L. J. Moorman, Dr. Ray Matson and Dr. R. L. Carlton.

Seven hundred and ninety-eight physicians, nurses and social workers were registered at the Annual Meeting.

SOCIETY MEETINGS

June 20—Clinical Congress of the New England Hospital for Women and Children. Complete notice appears on page 1269, issue of June 13.

June 26—Four Western Counties Medical Societies. Detailed notice appears on page 1310.

July 8-9—American Association for the Study of Allergy. Complete notice appears on page 906, issue of April 25.

July 9—American Heart Association. Scientific Meeting from 2 to 6 P. M. in the Auditorium of the Woman's Club, 448 Taylor Street, between 12th and 13th Streets, Portland, Oregon.

September 27-28—New England Surgical Society. Detailed notice appears on page 1227.

October 7-19—New York Academy of Medicine. Detailed notice appears on page 468, issue of February 28.

BOOK REVIEWS

Reprint of The Reports of the Council on Pharmacy and Chemistry of the American Medical Association for 1928. Price $1.00

This volume is a compilation of the reasons for the acceptance or rejection of various preparations which are put out by pharmaceutical houses and certain proprietary products. To those who are interested in keeping informed on that which merits its adoption this little book will be found to be especially useful.

NEW AND NON-OFFICIAL REMEDIES 1929—$1.50

In addition to previous reports the Council on Pharmacy and Chemistry of the American Medical Association presents in this book information of value to the busy physician who is importuned by salesmen or circulars to buy or prescribe the many preparations put out by pharmaceutical manufacturers.

In this edition there appears for the first time an article on liver preparations and their therapeutic use. The articles on ergot, metallic peroxides, pituitary gland, and radium and radium salts have been considerably revised. Among the new preparations which have been included in this edition are: diphtheria toxoid, which is the toxin of diphtheria so modified by treatment with formaldehyde as greatly to reduce its toxicity yet preserving its antitoxic power; metrazol, another proposed substitute for camphor; liver extract no. 343 and concentrated liver extract-Armour, for the treatment of pernicious anemia. Other newly accepted articles are bismuth sodium tartrate-Searle, another water soluble bismuth tartrate preparation; scarlet fever toxin—P. D. & Co., another scarlet fever toxin manufactured under lease of the Scarlet Fever Commission; parathyroid hormone-Squibb, standardized by the method of J. B. Collip, and paroidin, made and standardized by the method of A. M. Hanson, both being solutions of the active principle or principles of parathyroid gland for appropriate clinical use. An important deletion is the omission of all generators charged with radium.

A new departure in this edition is a list of "exempted" articles. This comprises some hundred and thirty medicinal and non-medicinal products examined by the Council and found to be of such composition and to be so marketed as not to require acceptance or rejection by the Council under its rules.

A section of the book (brought up to date each year) gives references to proprietary articles not included in New and Non-official Remedies.

Die Chirurgie. A comprehensive presentation of General and Special Surgery. Edited by PROF. DR. M. KIRSCHNER TÜBINGEN and PROF. DR. O. NORDMAN, Berlin. Section 24. Vol. 2, Part 2, pages 1421-1582 with 43 illustrations in the text and 5 color plates. Contents: Surgery of the Heart and Pericardium, Prof. Dr. Ed. Rehn Dusseldorf. Surgery of the Arteries and Veins, Prof. Dr. R. Stich Göttingen, Prof. Dr. W. V. Gaza Rostock i.m. Published by Urban and Schwarzenberg, Berlin.

This book is a section of one volume of a comprehensive System of Surgery edited by Kirschner and Nordmann. The individual section are monographs written by authorities in their respective fields. The inherent faults of such works, reduplication of material, omissions, and inequalities of the individual sections, are illustrated in the book under review. A further difficulty for the American reader is that allusions are chiefly to foreign procedures and workers, and the incomplete bibliographies make it difficult to trace these down.

Rehn's section on the heart opens with a review of the anatomy and physiology of the heart, pericardium and circulation which brings to light nothing new. There follows a section on preoperative investigation of cardiac reserve, in which reference is made to Katzenstein's, Valsalva's, Czermak's, Aschner's, and Kaufmann's tests. These tests are not described, nor do any of these names appear in the bibliography. A brief discussion of deaths under anesthesia recommends cardiac massage and intracardiac injection of adrenalin. One is cautioned to use extreme gentleness in the massage, and cases are reported in which severe damage had been done to the heart muscle by too vigorous manipulation. Under the heading "Herztamponade" there is an excellent discussion of the signs, symptoms and pathological physiology of increased intrapericardial pressure. There follow satisfactory presentations of the operative procedures and their indications and results in injuries of the heart and pericardium, the technique of pericardial paracentesis, pericardotomy, as well as Brauer's operation for extra pericardial adhesions and L. Rehn's pericardiectomy for intrapericardial adhesions. There is a short summary of the experimental and clinical operations on the heart valves.

Noteworthy omissions are a section on choice of anesthesia for cardiac operations, and a discussion of the various operative procedures recommended and employed for the relief of angina pectoris. It is possible that the latter are discussed in another volume of the series dealing with surgery of the vegetative nervous system.

In general this section on surgery of the heart and pericardium is well written, with good illustrations, and satisfactory case reports. Descriptions of operative technique are allusive rather than explicit, written by an adept for adepts, and a surgeon inexperienced in these procedures would have to look further before he could undertake these operations himself.

Distinctly inferior in merit is Stich's section on the arteries and veins. This opens with an unnecessarily long historical survey. The anatomy, embryology, and a painstakingly complete catalogue of anomalies and variations make up the rest of the introductory section. Discussion of injuries to vessels and their early and late sequelae makes up the remainder of Stich's contribution. There are brief discussions of hemorrhage, secondary hemorrhage, thrombosis, air emboli, and traumatic segmentary spasm. But the reader is referred to Volume I for methods of control of hemorrhage, and for the technique of vessel suture. There is no regional discussion of vessel injuries, such as those of meningeal, pulmonary, or portal vessels and the management peculiar to them. In regard to air emboli, the author recommends that at the earliest possible moment in operations on the neck, ligatures be placed about the major veins, which may be tied promptly if accidental opening should take place.

There is a lengthy discussion of the advisability of ligature versus suture of damaged vessels, and many eponymic tests for adequate collateral circulation are alluded to, but not described. Likewise there is a thorough discussion of the question of the desirability of ligation of accompanying veins, along with the injured artery.

Pulsating hematomas, aneurysms, and arteriovenous aneurysms are taken up, and their operative treatment discussed. The author is very sanguine in regard to reconstructive operations, and describes elaborate plastic operations on the vessels, and transplants of sections of saphenous vein to fill arterial gaps due to excisions of aneurysms. Matas's reconstructive endoneurysmorrhaphy is discussed but rejected on the ground that the wall of the sac is preserved. There is no mention of Matas's obliterative operation. Conservative measures, partial occlusions with fascia lata bands, etc. are described. There is no reference to aluminum bands, nor to the wiring methods occasionally used.

W. V. Gaza is author of the section on diseases of the arteries and veins. There is considerable description of the pathology of arteriosclerosis and other arterial diseases. A short paragraph describes Buerger's disease under the name of endarteritis productiva. Brief discussions of symptoms of peripheral arterial disease bring out nothing new. There is a one page discussion of the therapy of peripheral arterial disease, chiefly recommending physiotherapeutic agents. There is no mention of exercises, and no mention of periarterial sympathectomy. Leriche does not even achieve mention in the bibliography! A further brief paragraph discusses thrombi and emboli of peripheral vessels. Key's operation is alluded to, but not described. Another page discusses angiospasms, and presumably includes Raynaud's disease, although no mention is made of it.

The section dealing with diseases of veins covers varices, thrombophlebitis, phlebitis, thrombi, and pulmonary emboli. Nothing new is brought out here. Operations and injection for varices are discussed in a general way. An extensive discussion of etiology of phlebitis and emboli elicits nothing new. Walter's experimental work with thyroxin is alluded to. Ligations are advised in severe cases of thrombophlebitis. The section closes with a discussion of indications for Trendelenburg's operation for pulmonary emboli, with some suggested modifications of the technique. There is however no description of the technique of the operation.